

REPORT NO. 207-KAR-03-002

**SAFETY COMPLIANCE TESTING
FOR FMVSS 207**

SEATING SYSTEMS

2003 FORD
CROWN VICTORIA
4 DOOR SEDAN

NHTSA NO. C30204

PREPARED BY:
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AUGUST 12, 2003

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY ASSURANCE
OFFICE OF VEHICLE SAFETY COMPLIANCE
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WASHINGTON, D.C. 20590

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SECTION 1
PURPOSE OF COMPLIANCE TEST

1. PURPOSE OF COMPLIANCE TEST

Tests were conducted on a 2003 Ford Crown Victoria 4 Door Sedan, manufactured by Ford Motor Company, to determine compliance with FMVSS 207, "Seating Systems". The purpose of this standard is to reduce the number of deaths and injuries that may be caused by the failure of seats, their attachment hardware, and their installation when said failure results from the forces on the seat in a vehicle impact.

All tests were conducted based on the current National Highway Traffic Safety Administration (NHTSA), Office of Vehicle Safety Compliance (OVSC) Laboratory Procedures, TP-207-09, dated June 18, 1992, and corresponding KARCO Engineering, LLC test procedure KTP-207, dated August 2, 2003. Detailed procedures for receiving, inspecting, testing and reporting of test results are described in the test procedures and are not repeated in this report.

This report is organized in sections containing pertinent test information and data tables as follows:

- Section 2 - Compliance Test Procedure and Data Summary
- Section 3 - Compliance Test Data
- Section 4 - Noncompliance Data (if applicable)
- Appendix A - Photographs
- Appendix B - Data Plots
- Appendix C - Test Equipment List and Calibration Information

SECTION 2
COMPLIANCE TEST PROCEDURE and DATA SUMMARY

2. COMPLIANCE TEST PROCEDURE AND DATA SUMMARY

A 2003 Ford Crown Victoria 4 Door Sedan was subjected to FMVSS 207 compliance testing on August 7, through August 12, 2003. All tests were conducted at KARCO Engineering, LLC in Adelanto, California. Summary data is shown on Data Sheet No. 2. The following tests were performed:

- Receiving inspection
- Aft moment tests on front seat backs
- Aft load tests on front seat frames and adjusters
- Forward load tests on front seat frames and adjusters
- Forward load tests on front set frames and adjusters, including FMVSS 210 Loads
- Aft moment tests on rear seat backs
- Aft load tests on rear seat cushions and seat backs
- Forward load tests on rear seat cushions and seat backs, including FMVSS 210 Loads

The tests were conducted per the FMVSS 207 test procedure. The significant aspects of the test procedure are described in the following paragraphs.

2.1 Test Vehicle Inspection. The test vehicle was inspected to verify that all seat, restraint systems and seat belt assembly anchorage systems are complete and the seat adjusting mechanisms are working properly.

2.2 Test Vehicle Preparation and Pre-test Measurements. The test vehicle was securely mounted to the test fixture and connected to the appropriate number of hydraulic actuators. Lateral spacing of the individual seat anchorages were measured and all other angular and dimensional measurements were verified to be in compliance with the requirements of the subject safety standards. The components were weighed and their centers of gravity determined.

2.3 Static Load Tests-General Performance Requirements.

When tested in accordance with S5, each occupant seat, other than a side-facing seat or a passenger seat on a bus, shall withstand the following forces:

- (a) In any position to which it can be adjusted — 20 times the weight of the seat applied in a forward longitudinal direction;

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2.... (Continued)

- (b) In any position to which it can be adjusted — 20 times the weight of the seat applied in a rearward longitudinal direction;
- (c) For a seat belt assembly attached to the seat — the force specified in subparagraph (a), if it is a forward facing seat, or subparagraph (b), if it is a rearward facing seat, in each case applied simultaneously with the forces imposed on the seat by the seat belt assembly when it is loaded in accordance with section S4.2 of Federal Motor Vehicle Safety Standard No. 210; and
- (d) In its rearmost position — a force that produces a 3,300 inch-pound moment about the seating reference point (SRP) for each designated seating position (DSP) that the seat provides, applied to the upper cross-member of the seat back or the upper seat back, in a rearward longitudinal direction for forward-facing seats and in a forward longitudinal direction for rearward-facing seats.
- (e) To meet FMVSS 210 requirements, the anchorages, attachment hardware, and attachment bolts for all Type 2 and automatic seat belt assemblies that are installed to comply with Standard No. 208 (49 CFR 571.208) shall withstand 3,000 pound forces when tested in accordance with S5.2.

SECTION 3
COMPLIANCE TEST DATA

3. COMPLIANCE TEST DATA

The results of FMVSS 207 compliance tests that were conducted on the 2003 Ford Crown Victoria 4 Door Sedan on August 7, through August 12, 2003, to determine compliance with FMVSS 207, "Seating Systems" are presented in this section. No performance failures were identified for the vehicle tested.

DATA SHEET NO. 1
TEST VEHICLE RECEIVING INSPECTION

VEHICLE			
YEAR	2003	MAKE	FORD
MODEL	CROWN VICTORIA	BODY STYLE	4 DOOR SEDAN
NHTSA NO.	C30204	VIN	2FAFP73W33X180682
BUILD DATE	01/03	TEST DATE	08/07/03 - 08/12/03
TEST LABORATORY	KARCO ENGINEERING, L.L.C.		

1. First compliance test by laboratory for this vehicle is S207 test.

Yes ☒ No (Go to Item 2) ☐

☒ 1.1 Label test vehicle with NHTSA Number
☒ 1.2 Verify all options on the "window sticker" are present on the vehicle
☒ 1.3 Verify tires and wheel rims are new and the same as listed
☒ 1.4 Verify there are no dents or other interior or exterior flaws
☒ 1.5 Verify the glove box contains an owner's manual, warranty document, consumer information, and extra keys

☒ 1.6 Verify the vehicle is equipped with the proper fuel filler cap
☒ 1.7 If the vehicle has been delivered from the dealer, verify the vehicle has been properly prepared and is in running condition
2. Verify seat adjusters are working

☒ Yes ☐ No
3. Verify there is a seat belt at each seating position

☒ Yes ☐ No
4. Without disturbing the integrity of each seat belt and anchorage, verify that each seat belt is attached to the anchorage. For seat belts that are attached to the seat, also verify the seats are attached to the seat anchors and the seat anchors are attached to the vehicle.

☒ Yes ☐ No

RESULTS OR RECEIVING INSPECTION:

PASS -- X

FAIL --

CONDITIONAL --

REMARKS:

RECORDED BY: MARK A. KRATZKE DATE: 08/07/03

APPROVED BY: MATTHEW A. IVORY DATE: 08/07/03

DATA SHEET NO. 2
SEATING SYSTEM TEST RESULTS

VEHICLE			
YEAR	2003	MAKE	FORD
MODEL	CROWN VICTORIA	BODY STYLE	4 DOOR SEDAN
NHTSA NO.	C30204	VIN	2FAFP73W33X180682
BUILD DATE	01/03	TEST DATE	08/07/03 - 08/12/03
TEST LABORATORY	KARCO ENGINEERING, L.L.C.		

LEGEND: Wa - Weight of Seat Assembly

Wb - Weight of Seat Back

Wc - Weight of Seat Cushion

Z - Distance from Seat SRP to Uppermost Crossmember = 18.0 "

FOR FRONT BUCKET SEATS - - LEFT SIDE

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	PEAK MOMENT (in-lbs)	ATTACHMENT (PASS/FAIL)
Seat Back	Forward	Wb = 24	20 x Wb = 480	N/A	N/A	N/A
Seat Assy.	Forward	Wa = 62	20 x Wa = 1240	1233.0	N/A	PASS
	Rearward	Wa = 38	20 x Wa = 1240	1237.4	N/A	PASS
Seat Back Moment	Rearward	N/A	3275 in-lb/Z	178.9	3220.2	PASS

FOR FRONT BUCKET SEATS - - RIGHT SIDE

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	PEAK MOMENT (in-lbs)	ATTACHMENT (PASS/FAIL)
Seat Back	Forward	Wb = 24	20 x Wb = 480	N/A	N/A	N/A
Seat Assy.	Forward	Wa = 52	20 x Wa = 1040	1025.9	N/A	PASS
	Rearward	Wa = 52	20 x Wa = 1040	1014.6	N/A	PASS
Seat Back Moment	Rearward	N/A	3275 in-lb/Z	177.8	3200.4	PASS

(Continued on next page)

DATA SHEET NO. 2.... Continued

FOR FRONT BUCKET SEATS -- COMBINED

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	ATTACHMENT (PASS/FAIL)
Driver Lap Belt	Forward	N/A	3,000 lbs, -10, -50	2973.1	PASS
Driver Shoulder Belt	Forward	N/A	3,000 lbs, -10, -50	2975.4	PASS
Center Lap Belt	Forward	N/A	5,000 lbs, -10, -50	4980.4	PASS
Passenger Lap Belt	Forward	N/A	3,000 lbs, -10, -50	2993.5	PASS
Passenger Shoulder Belt	Forward	N/A	3,000 lbs, -10, -50	2992.8	PASS
Driver Seat Assembly	Forward	Wa = 62	20 x Wa = 1240	1233.0	PASS
Passenger Seat Assembly	Forward	Wa = 52	20 x Wa = 1040	1025.9	PASS

LEGEND: Wa - Weight of Seat Assembly

Wb - Weight of Seat Back

Wc - Weight of Seat Cushion

Z - Distance from Seat SRP to Uppermost Crossmember = 18.0 "

FOR REAR SEATS --

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	PEAK MOMENT (in-lbs)	ATTACHMENT (PASS/FAIL)
Left Cushion	Forward	Wc = 10	20 x Wc = 200	199.2	N/A	PASS
Left Back	Forward	Wb = 14	20 x Wb = 280	272.5	N/A	PASS

(Continued on next page)

DATA SHEET NO. 2.... Continued
FOR REAR SEATS -- COMBINED

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	ATTACHMENT (PASS/FAIL)
Left Lap Belt	Forward	N/A	3,000 lbs, -10, -50	2988.8	PASS
Left Shoulder Belt	Forward	N/A	3,000 lbs, -10, -50	2944.7	PASS
Left Rear Seat Back	Forward	Wa = 24	20 x 24 = 480	460.7	PASS
Center Lap Belt	Forward	N/A	3,000 lbs, -10, -50	N/A	N/A
Center Shoulder Belt	Forward	N/A	3,000 lbs, -10, -50	N/A	N/A
Right Lap Belt	Forward	N/A	3,000 lbs, -10, -50	2939.0	PASS
Right Shoulder Belt	Forward	N/A	3,000 lbs, -10, -50	2981.7	PASS
Right Rear Seat Back	Forward	Wa = 24	20 x 24 = 480	472.7	PASS

COMMENTS:

RECORDED BY: MARK A. KRATZKE DATE: 08/07/03

APPROVED BY: MATTHEW A. IVORY DATE: 08/07/03

**DATA SHEET NO. 3
SEAT BACK ANGLES**

VEHICLE			
YEAR	2003	MAKE	FORD
MODEL	CROWN VICTORIA	BODY STYLE	4 DOOR SEDAN
NHTSA NO.	C30204	VIN	2FAFP73W33X180682
BUILD DATE	01/03	TEST DATE	08/07/03 - 08/12/03
TEST LABORATORY	KARCO ENGINEERING, L.L.C.		

LAP BELT ANCHORAGES:

SEAT	SEATING POSITION	SPECIFIED ANGLE RANGE ABOVE HORIZONTAL	MEASURED ANGLE		DOES BELT SECURELY FIT ON PELVIS?
			I/B	O/B	
FRONT	Left	30 to 75 degrees	58°	55°	YES
	Center	30 to 75 degrees	47°	47°	YES
	Right	30 to 75 degrees	56°	55°	YES
REAR	Left	30 to 75 degrees	35°	36°	YES
	Center	30 to 75 degrees	N/A	N/A	N/A
	Right	30 to 75 degrees	36°	36°	YES

SHOULDER BELT ANCHORAGES:

SEAT	SEATING POSITION	SPECIFIED ANGLE RANGE ABOVE OR BELOW HORIZONTAL	MEASURED ANGLE
FRONT	Left	0 – 80 degrees above	50°
		0 – 40 degrees below	N/A
	Right	0 – 80 degrees above	50°
		0 – 40 degrees below	N/A
REAR	Left	0 – 80 degrees above	58°
		0 – 40 degrees below	N/A
	Center	0 – 80 degrees above	N/A
		0 – 40 degrees below	N/A
	Right	0 – 80 degrees above	56°
		0 – 40 degrees below	N/A

RECORDED BY: MARK A. KRATZKE DATE: 08/07/03

APPROVED BY: MATTHEW A. IVORY DATE: 08/07/03

DATA SHEET NO. 4**REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING**

The following vehicle has been subjected to compliance testing for FMVSS No. 207

VEHICLE			
NHTSA NO.	C30204	TEST DATE	08/12/03
CONTRACT NO.	DTNH22-01-C-31025	VIN	2FAFP73W33X180682
SEAT CONFIGURATION			
VEHICLE OR SEAT MANUFACTURER	FORD MOTOR COMPANY		
TEST LABORATORY	KARCO ENGINEERING, L.L.C.		

The vehicle was inspected upon arrival at the laboratory for the test and found to contain all of the equipment listed below. All variances have been reported within 2 working days of vehicle arrival, by letter, to the NHTSA Industrial Property Manager (NAD-30), with a copy to the OVSC COTR. The vehicle is again inspected, after the above test has been conducted, and all changes are noted below. The final condition of the vehicle is also noted in detail.

TEST VEHICLE INFORMATION			
Manufacturer	FORD MOTOR COMPANY	VIN	2FAFP73W33X180682
Manufacturing Date	01/03	Delivery Date	03/15/03
Dealer	ANTELOPE VALLEY	NHTSA No.	C30204
Odometer Reading (mi.)	77	Fuel Type	GAS
Engine Displacement	4.6 LITERS	Cylinders	8
Transmission	AUTOMATIC	Final Drive	REAR
Engine Placement	LONGITUDINAL	Color	BLUE
Tire Press./Max. Cap. Front	32 psi	Cold Tire Press. Front	32 psi
Tire Press./Max. Cap. Rear	35 psi	Cold Tire Press. Rear	35 psi
Recommend Tire Size	P225/60 R16	Type of Spare	T145/80 D16
Tire Size on Vehicle	P225/60 R16	Manufacturer	GOODYEAR
GVWR	5804 lbs.	Cargo Capacity	200 lbs.
GAWR Front	2700 lbs.	GAWR Rear	3104 lbs.
Air Conditioning	YES	Power Steering	YES
Power Brakes	YES	AM/FM/Cassette	YES
Disc Brakes (Front)	YES	Disc Brakes (Rear)	NO
Power Windows	YES	Tilt Steering	YES
Anti-lock Brakes (ABS)	YES	Power Seats	YES
Driver Airbag	YES	Passenger Airbag	YES

Test Vehicle Condition: **FRONT OF VEHICLE WAS REMOVED, SEATS WERE TESTED.**

RECORDED BY: MARK A. KRATZKE DATE: 08/12/03

APPROVED BY: MATTHEW A. IVORY DATE: 08/12/03

APPENDIX A
PHOTOGRAPHS

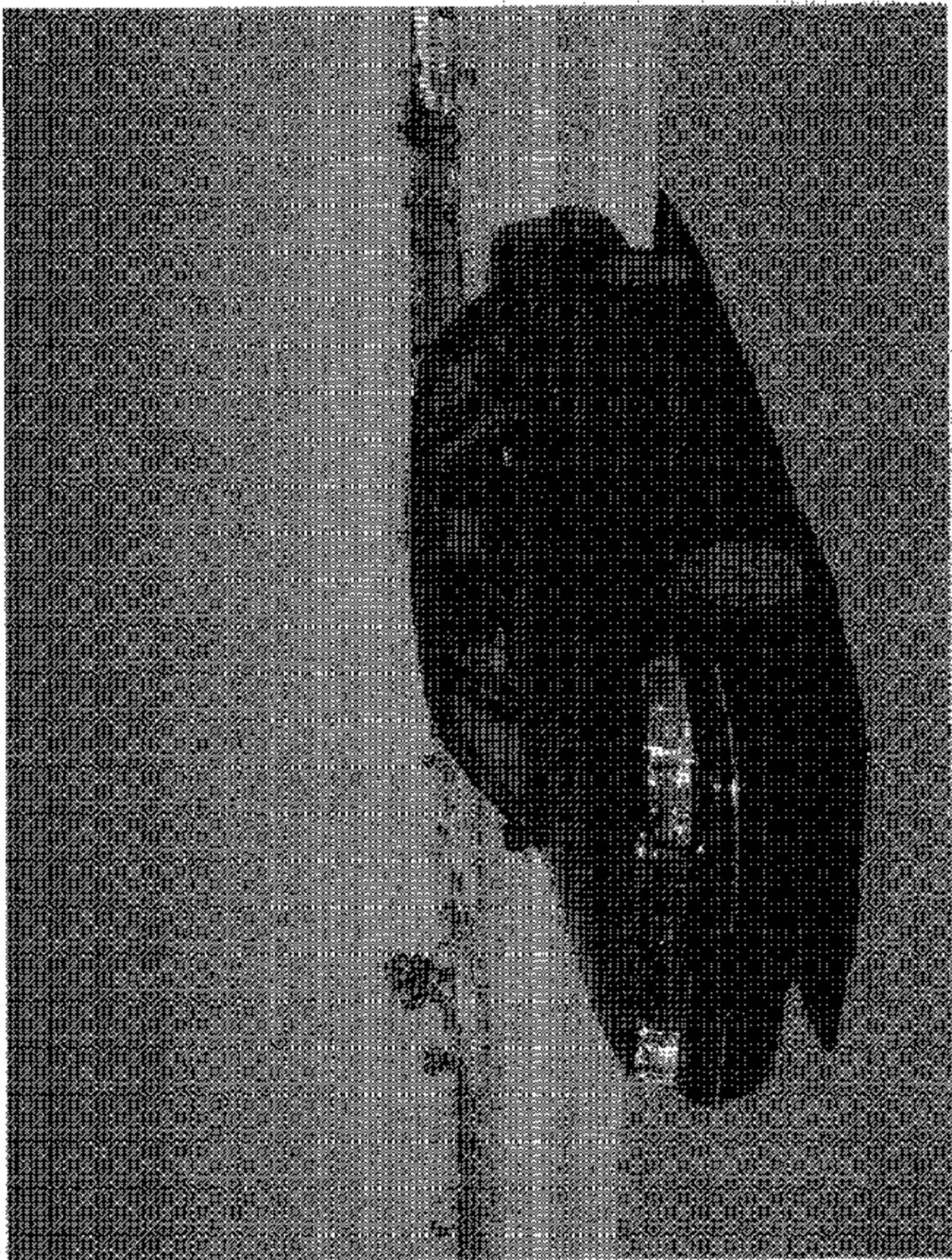


Figure A-1: Left Front (as Received)

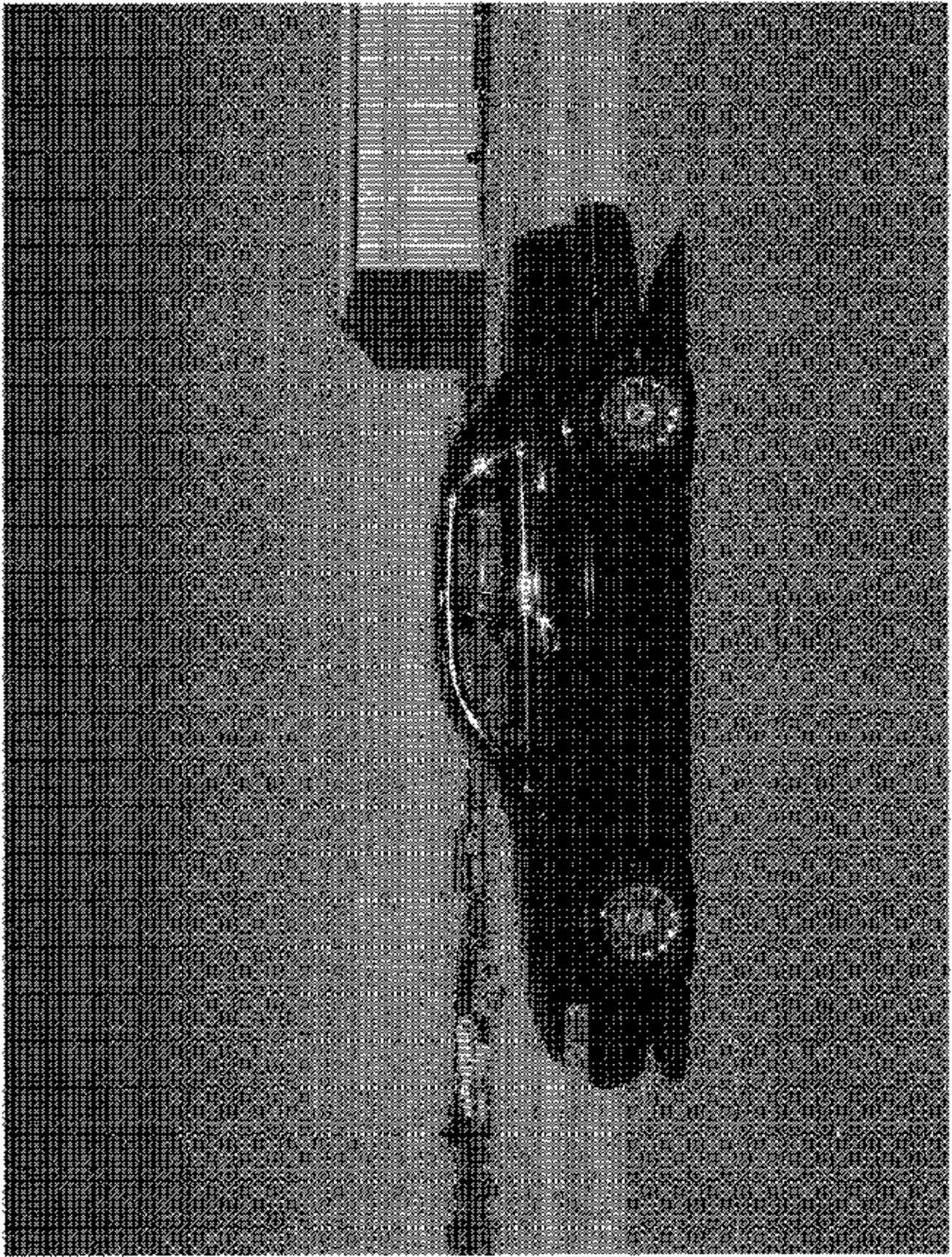


Figure A-2: Left Side (as Received)

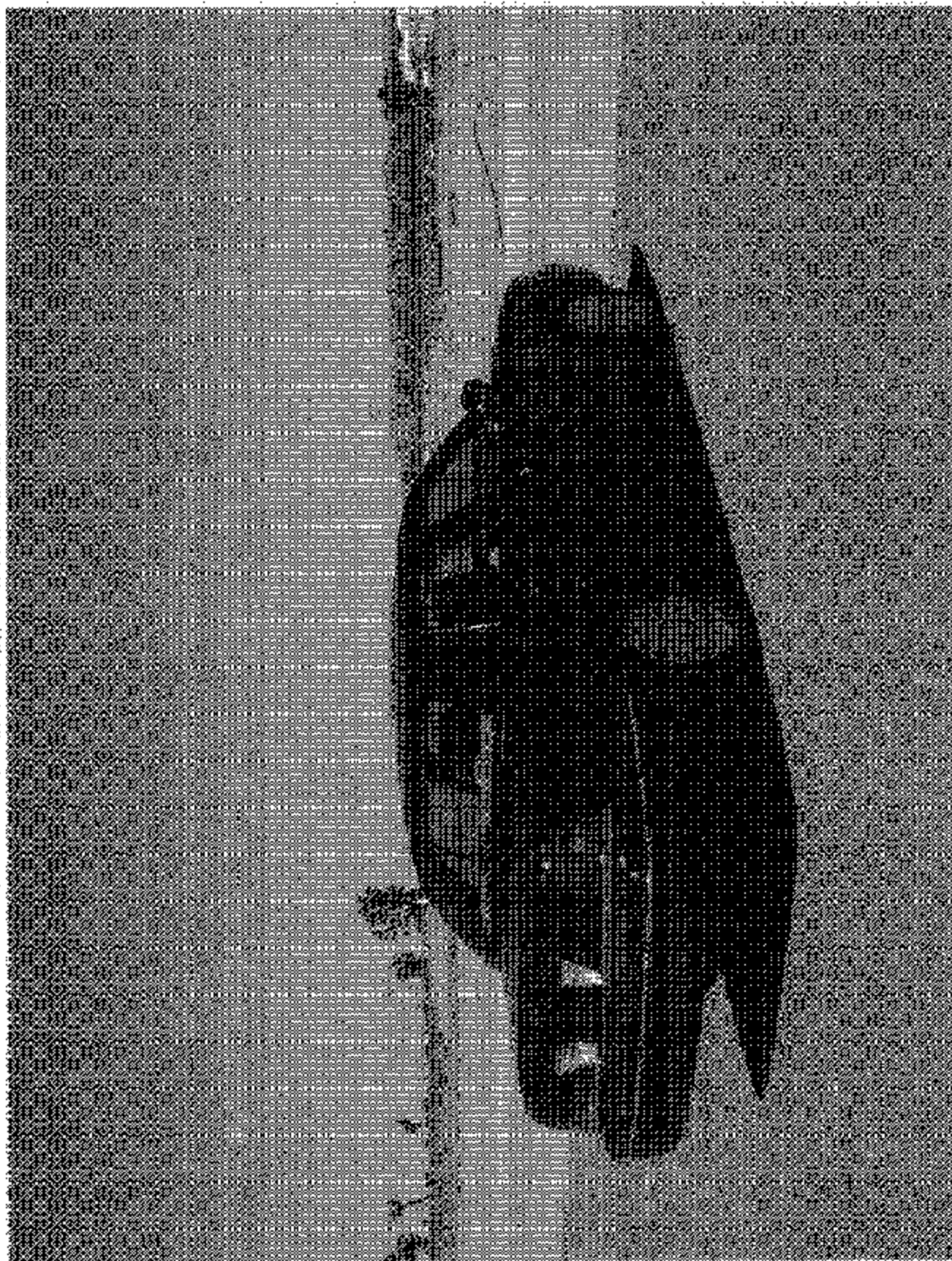


Figure A-3: Right Rear (as Received)

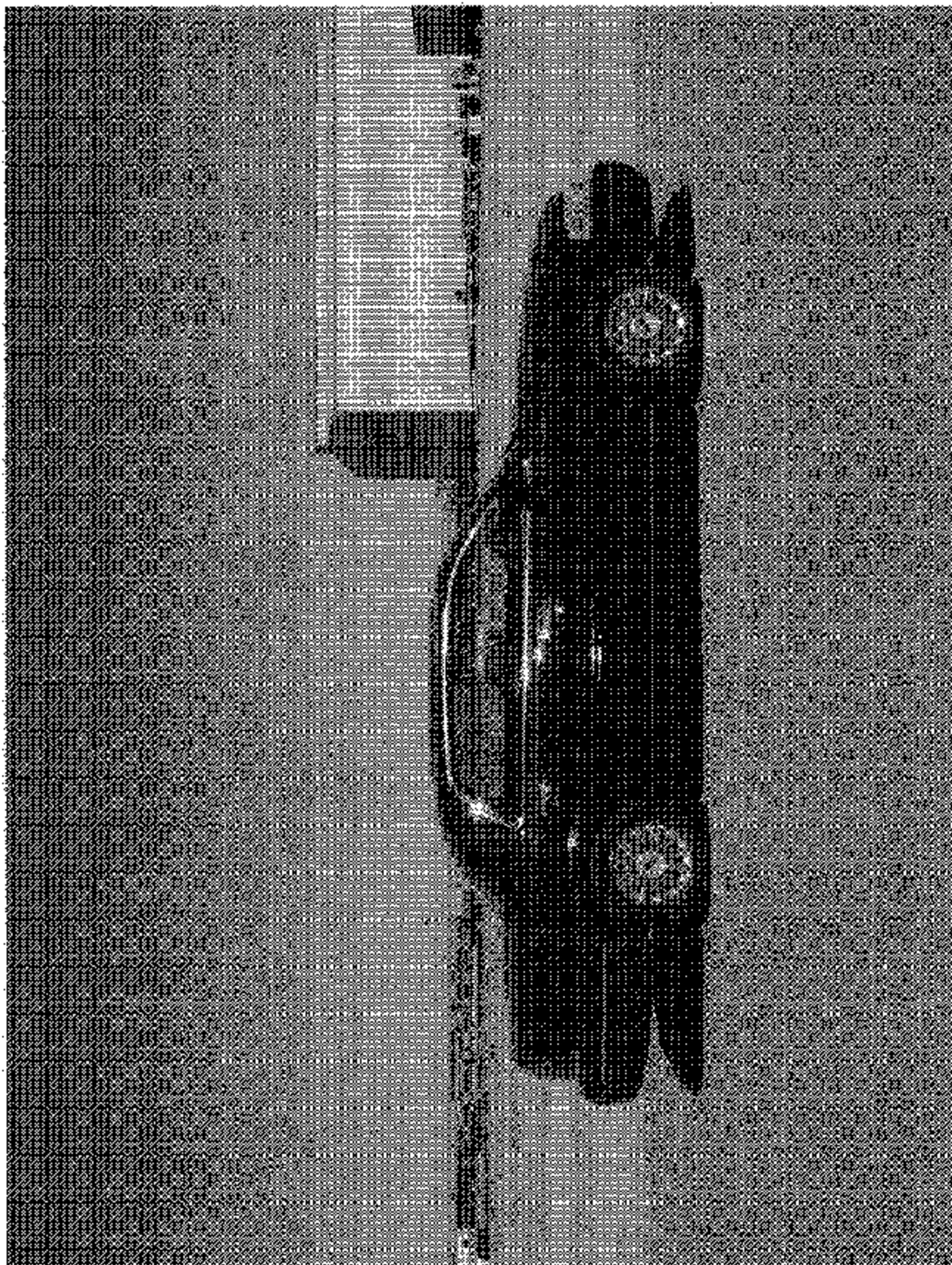


Figure A-4: Right Side (as Received)

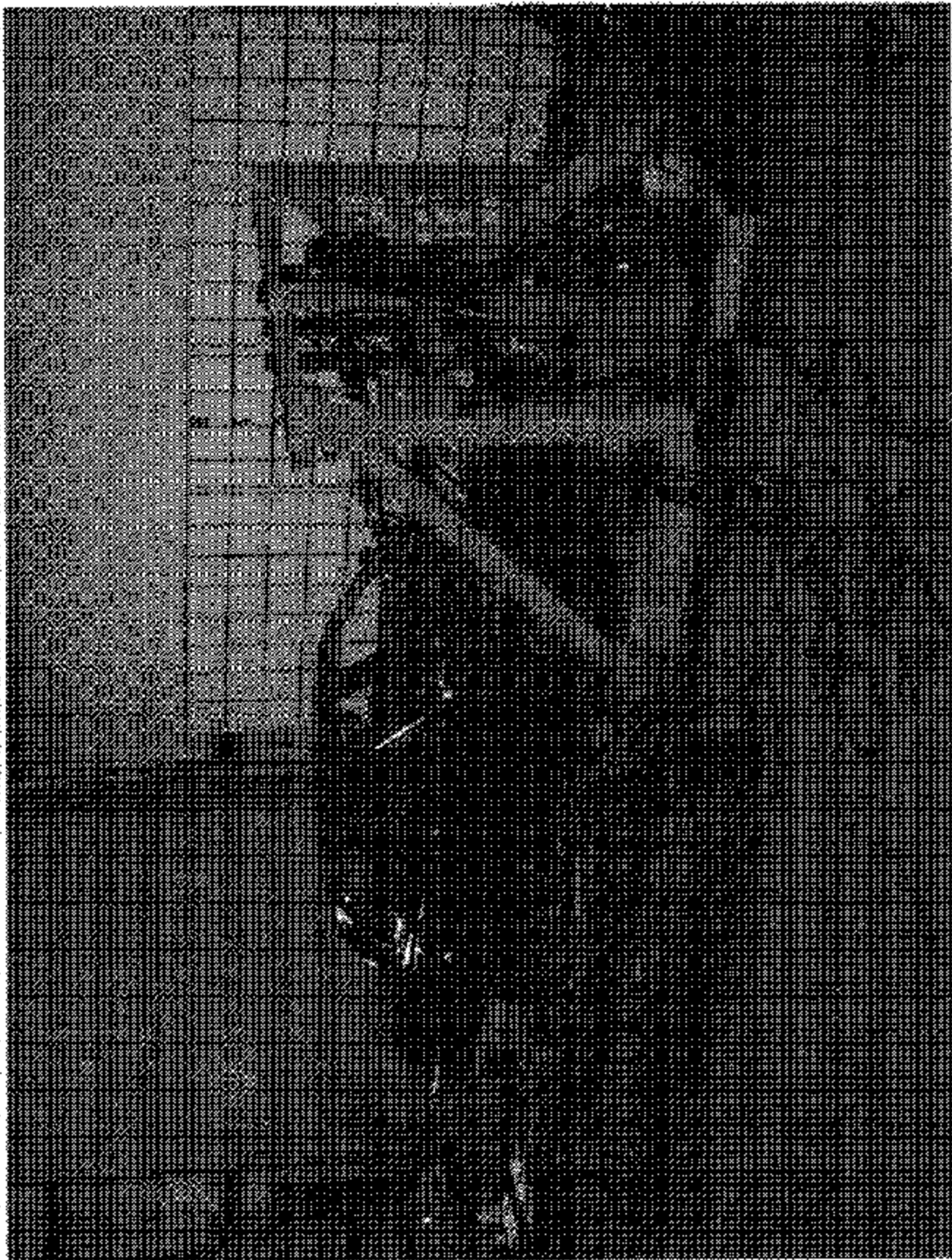


Figure A-7: Vehicle Mounted in Test Fixture

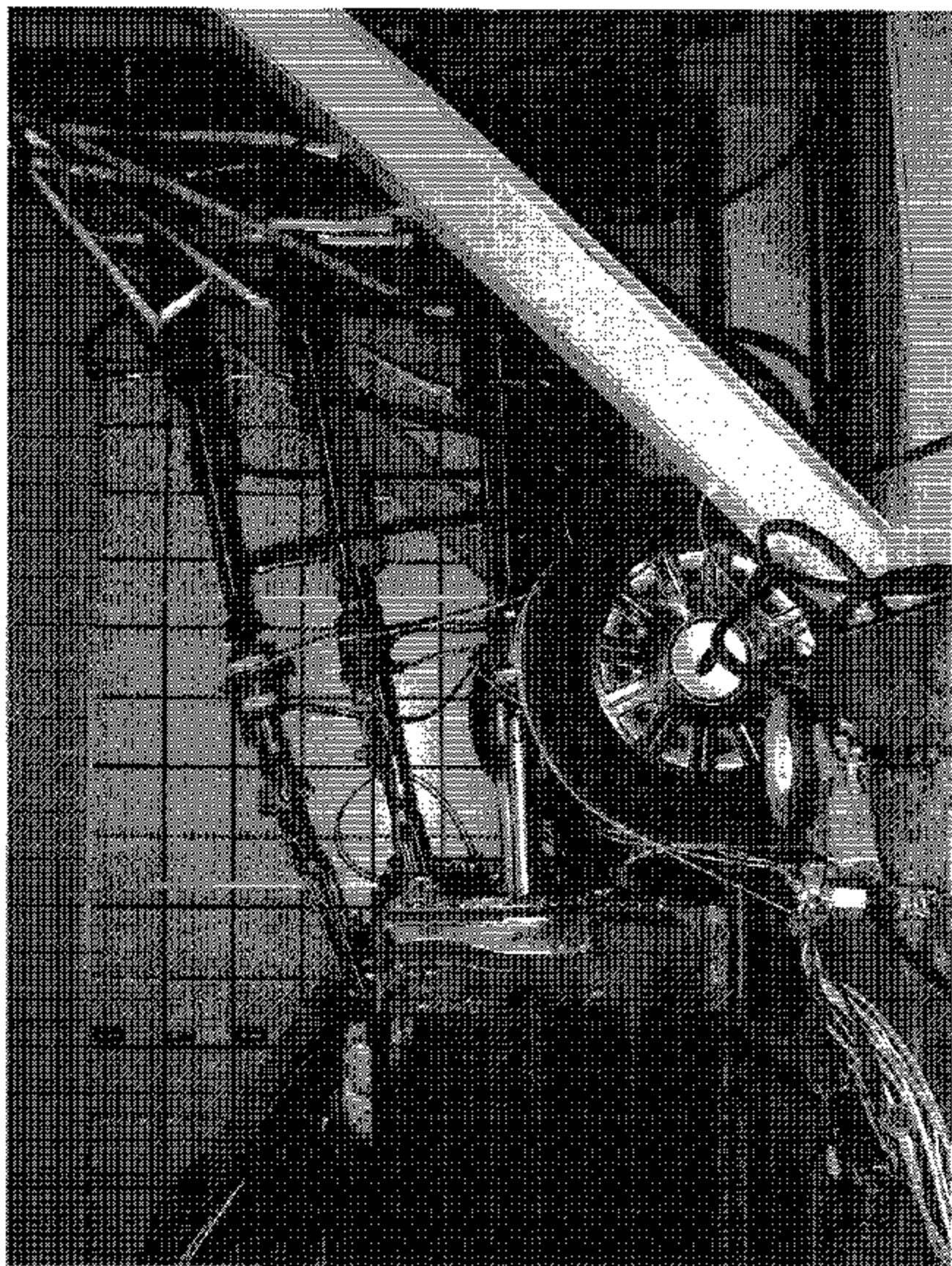


Figure A-8: Vehicle Mounted in Test Fixture

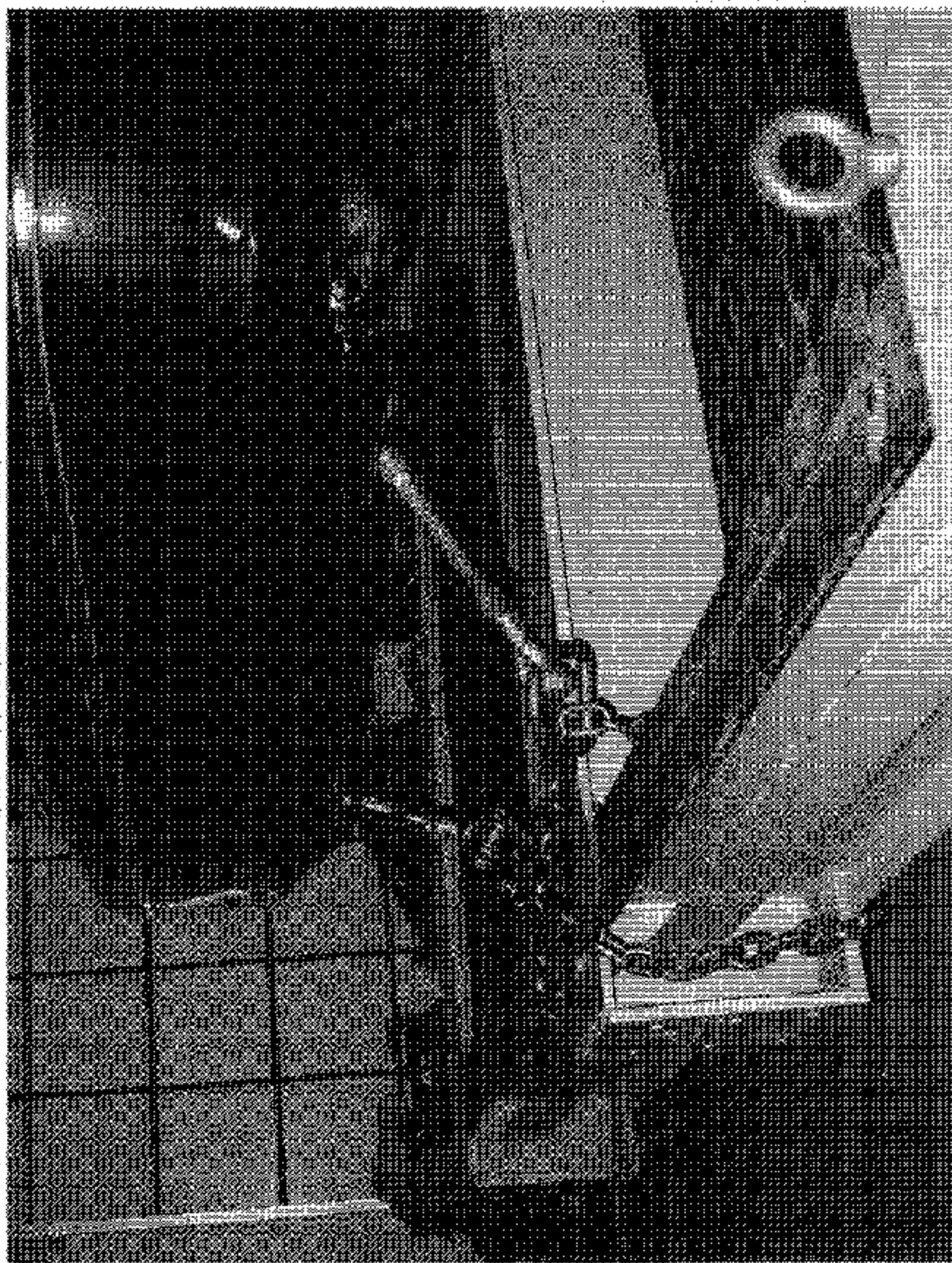


Figure A-9: Vehicle Mounted in Test Fixture

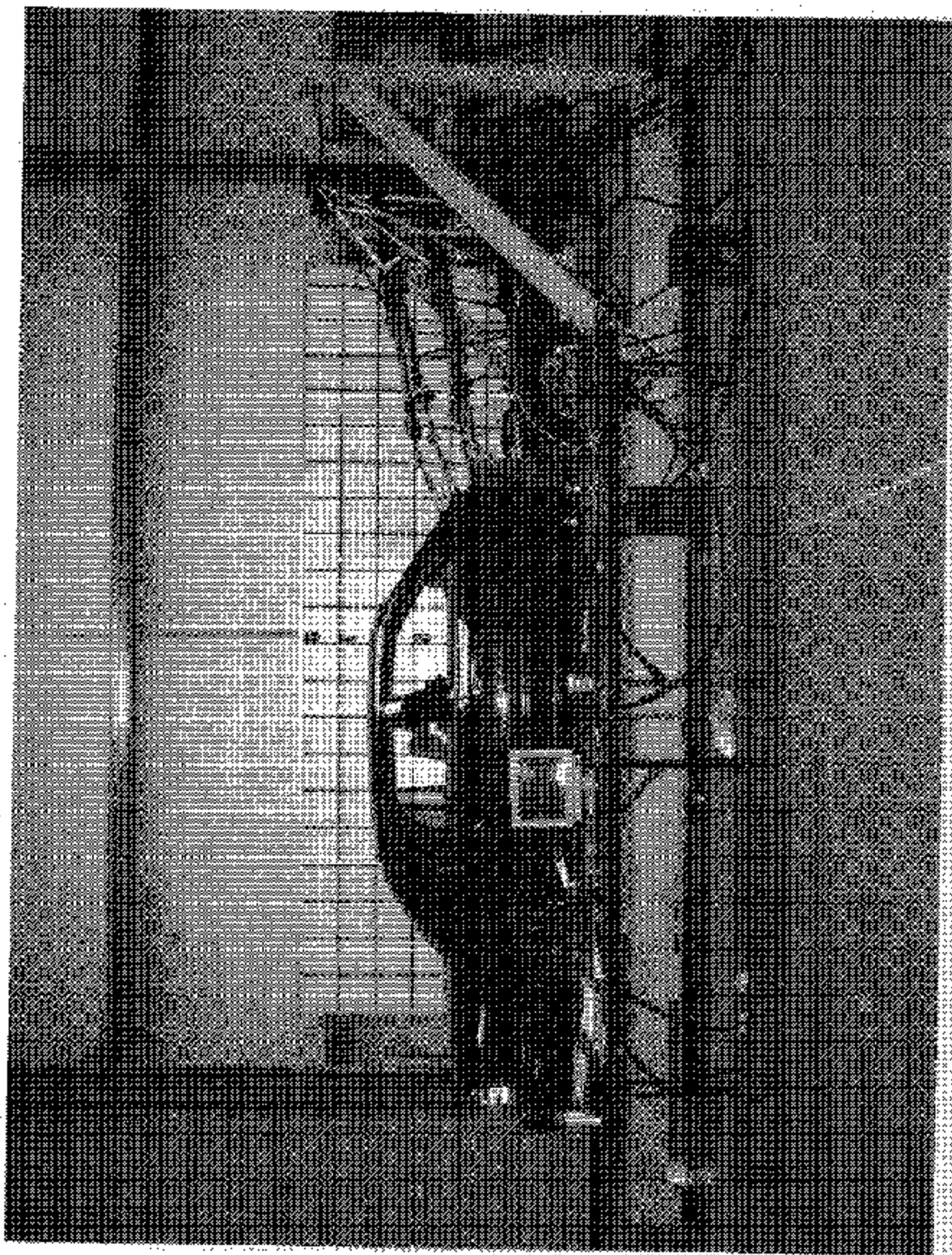


Figure A-10. Vehicle Mounted in Test Fixture

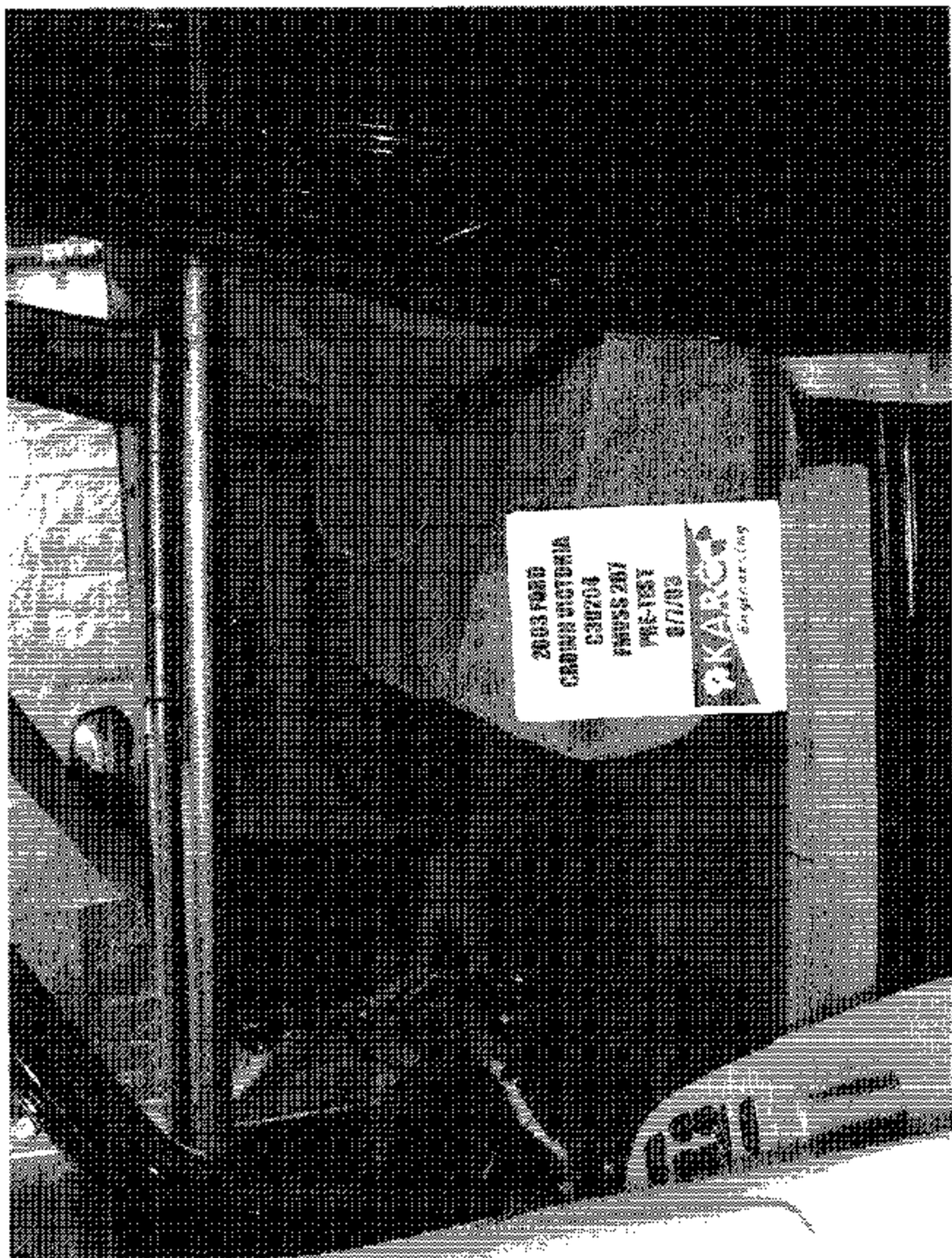


Figure A-11: Aft Moment on Seat Frame and Adjusters, Driver's Side, Pre-Test

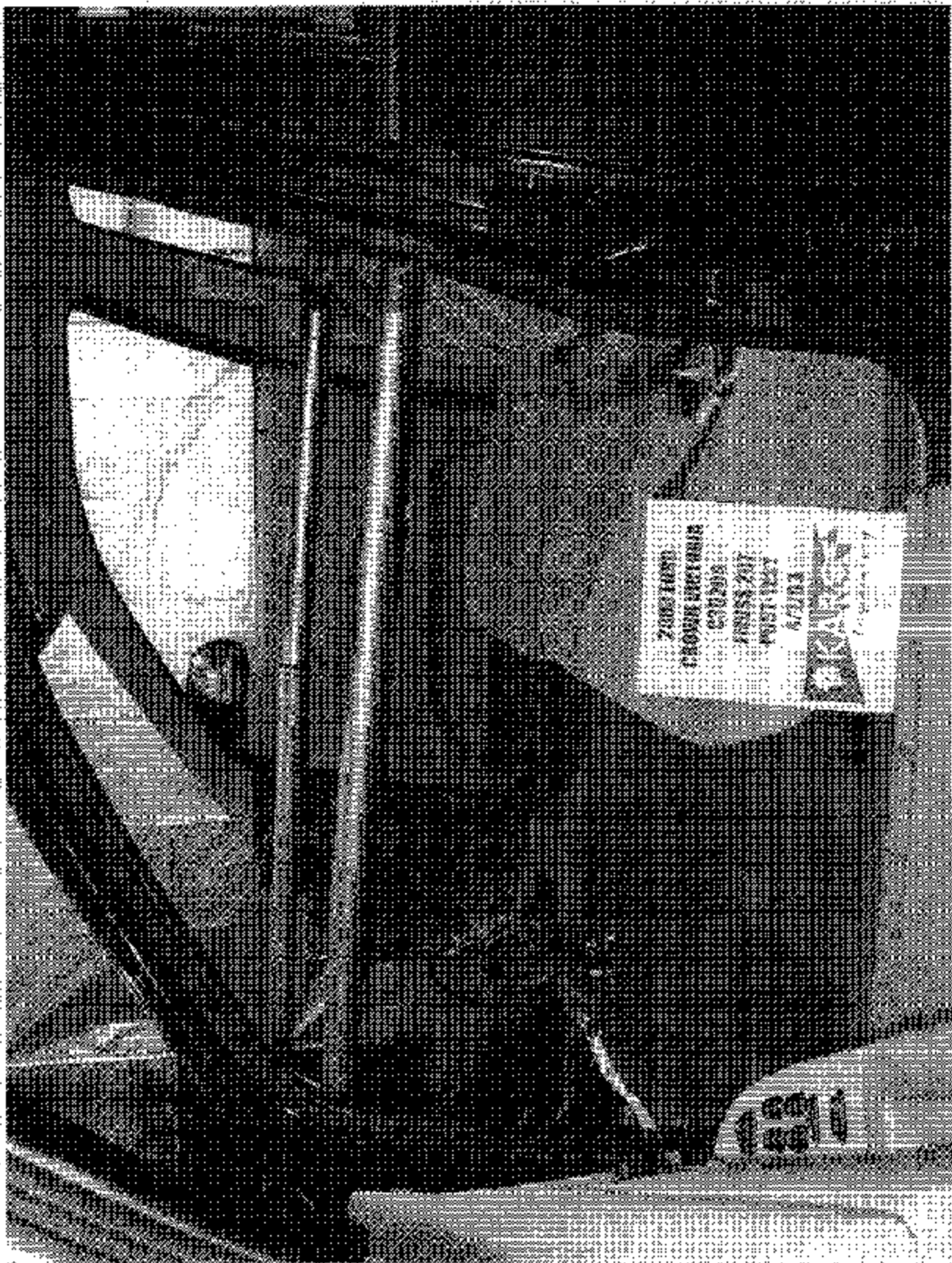


Figure A-12: All Moment on Seat Frame and Adjusters, Driver's Side, Post Test



Figure A-13: Alt Moment on Seat Frame and Adjusters, Passenger's Side, Pre-Test

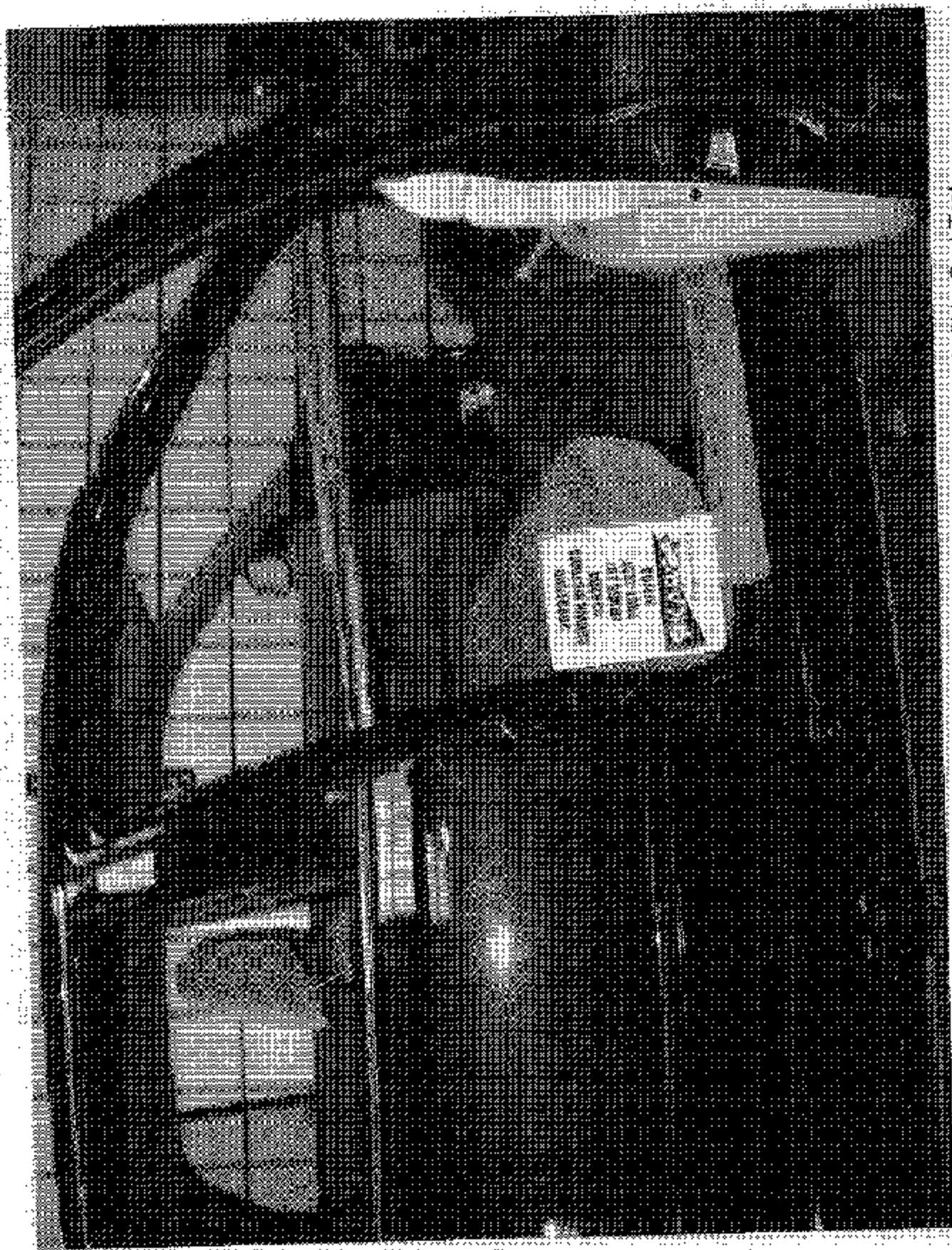


Figure A-14 All Moment on Seat Frame and Adjusters, Passenger's Side, Post-Test

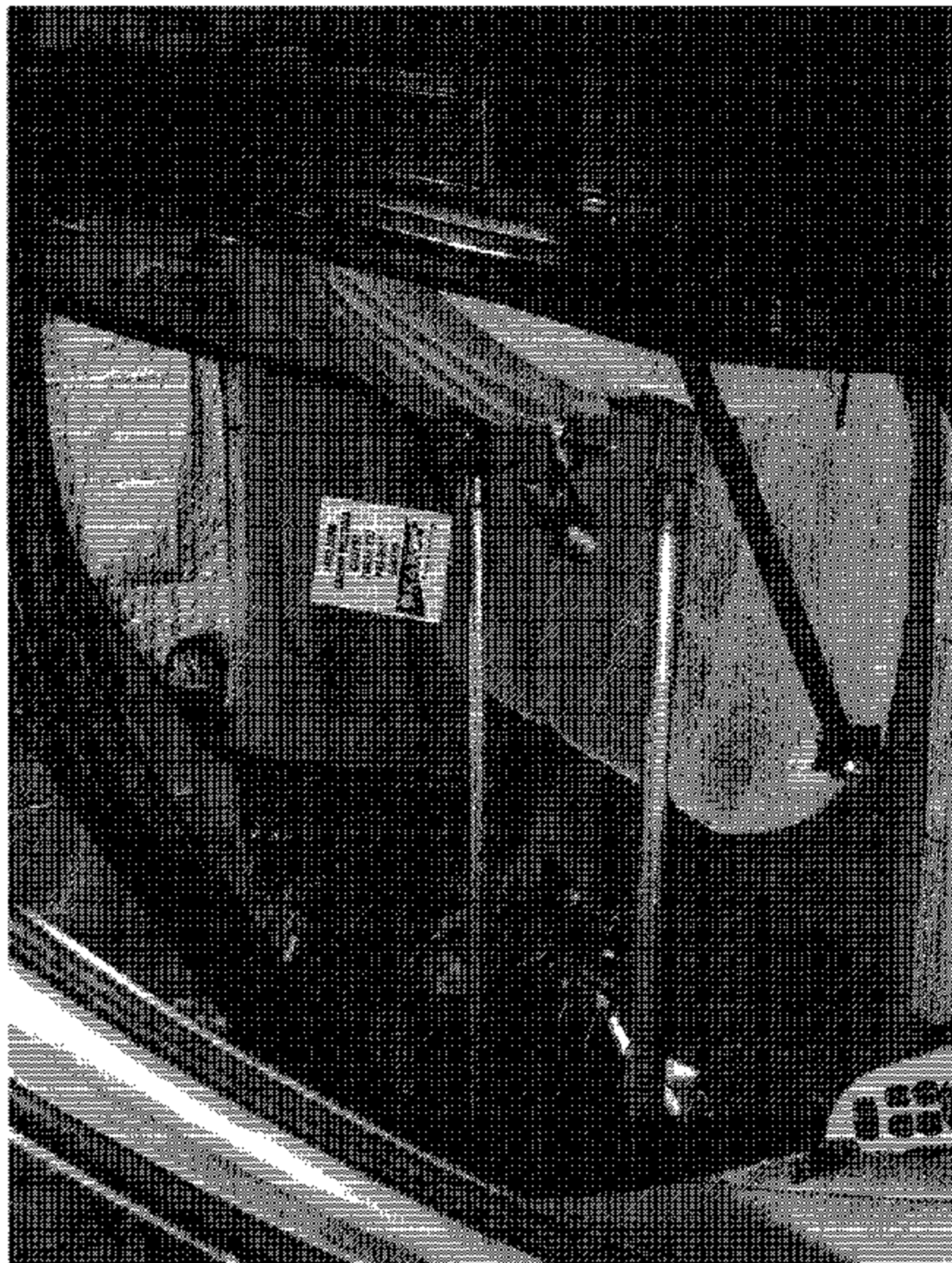


Figure A-15: Aft Load on Seat Frame and Adjusters, Driver's Side, Pre-Test

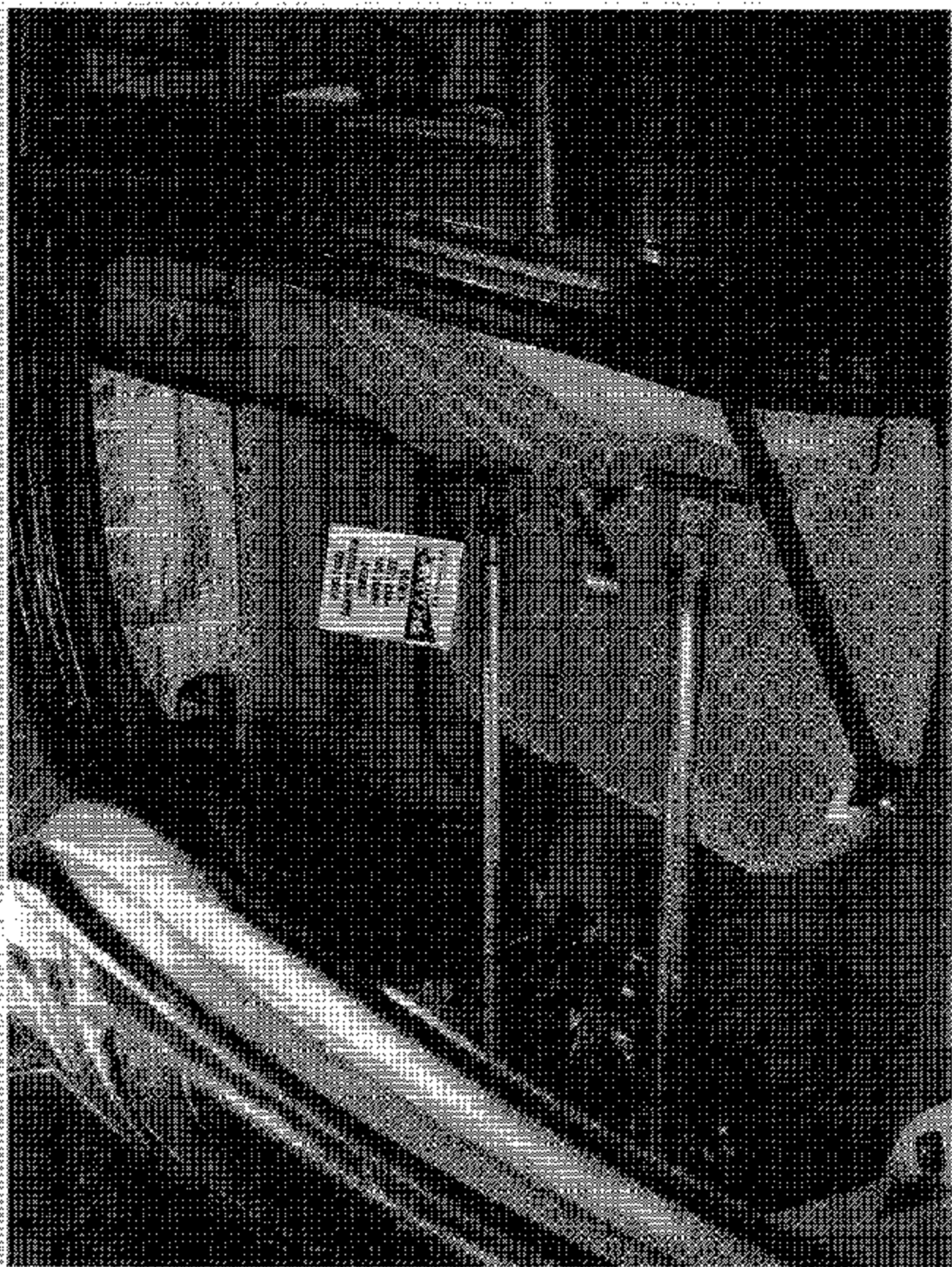


Figure A-16: Alt Load on Seat Frame and Adjusters, Driver's Side, Post-Test



Figure A-17: Aft Load on Seat Frame and Adjusters, Passenger's Side, Pre-Test

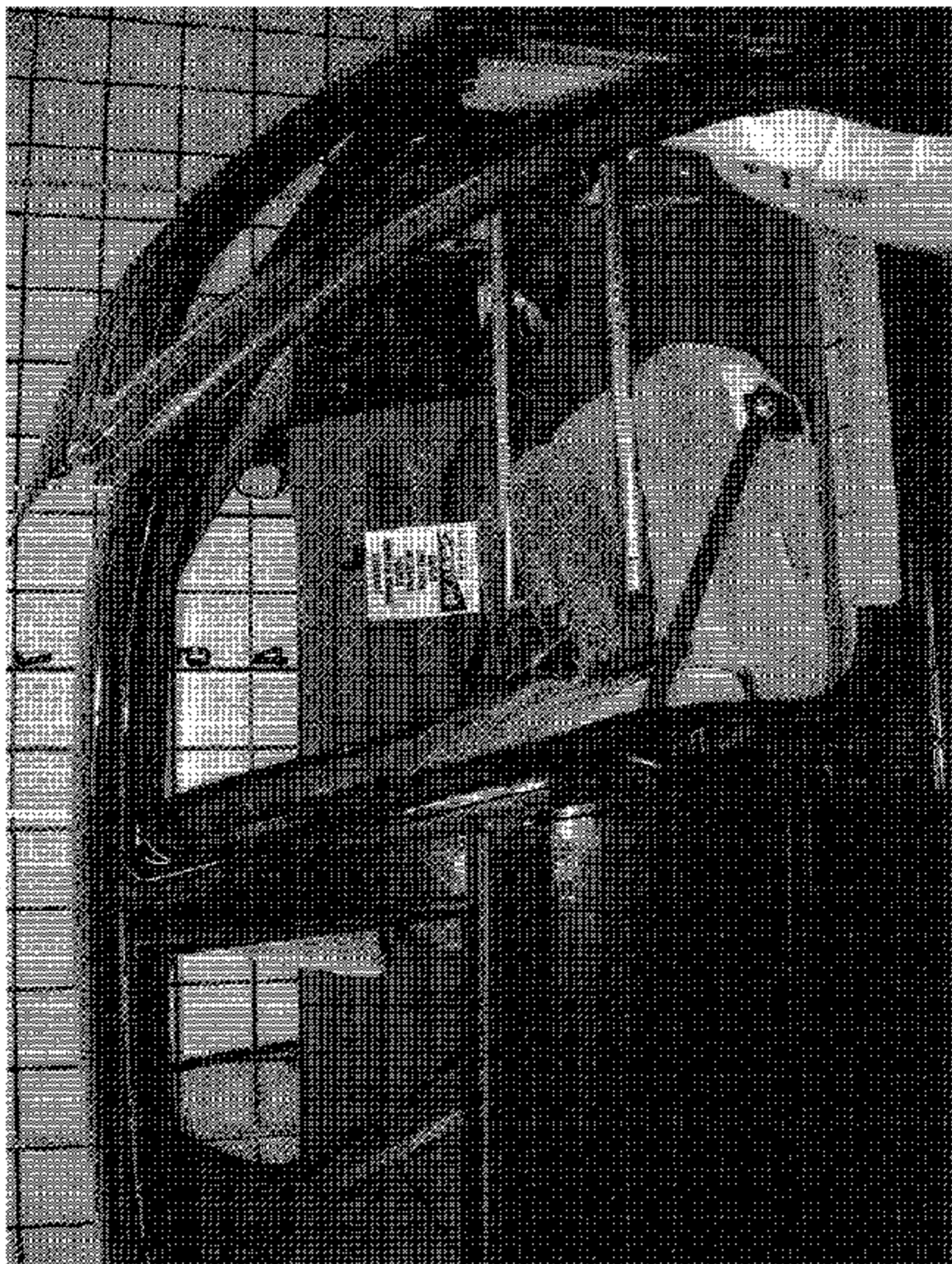


Figure A-18: Air Load on Seat Frame and Adjusters, Passenger's Side, Post-Test

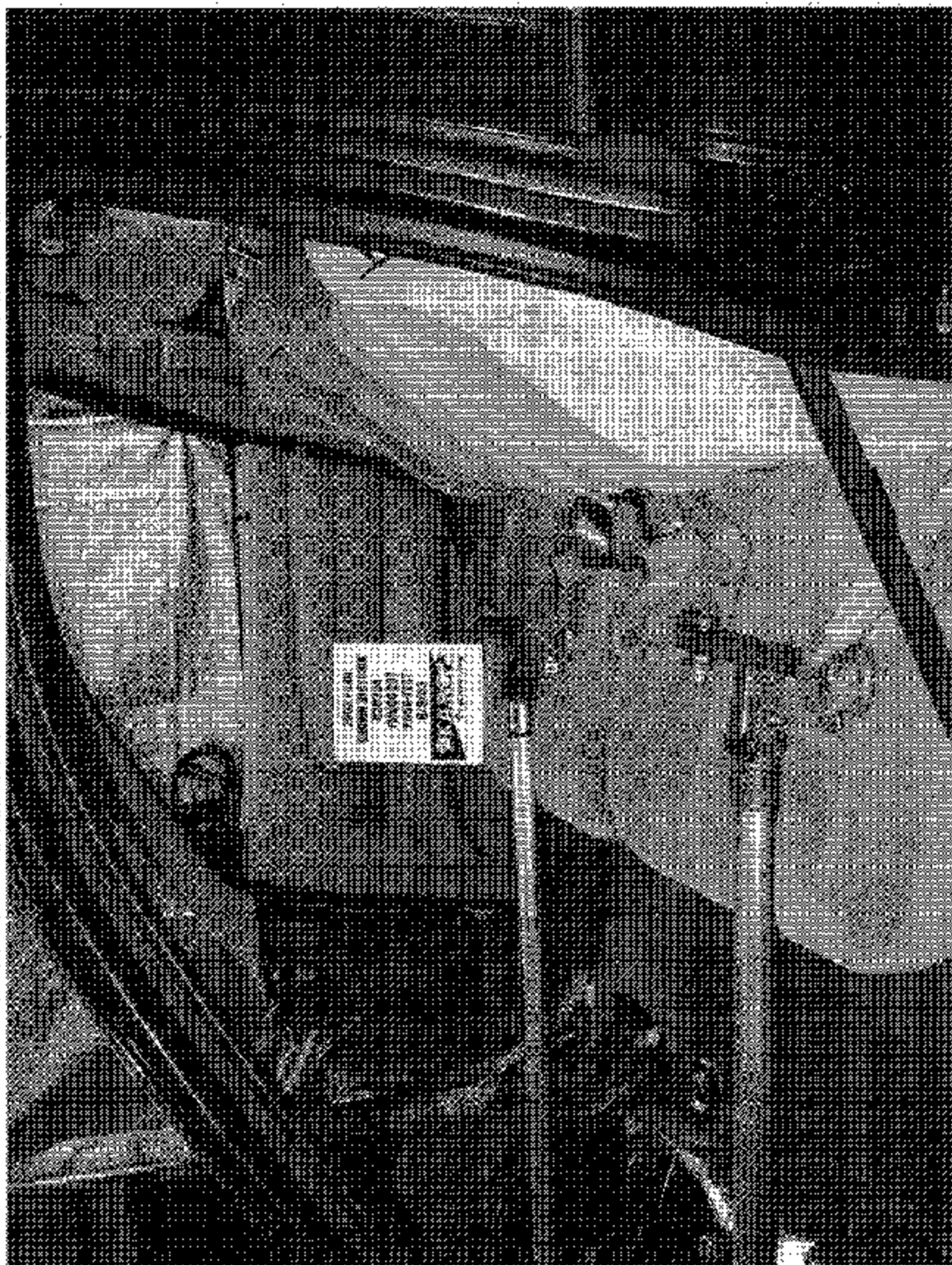


Figure A-20: Forward Load on Seat Frame and Adjusters, Driver's Side, Post-Test

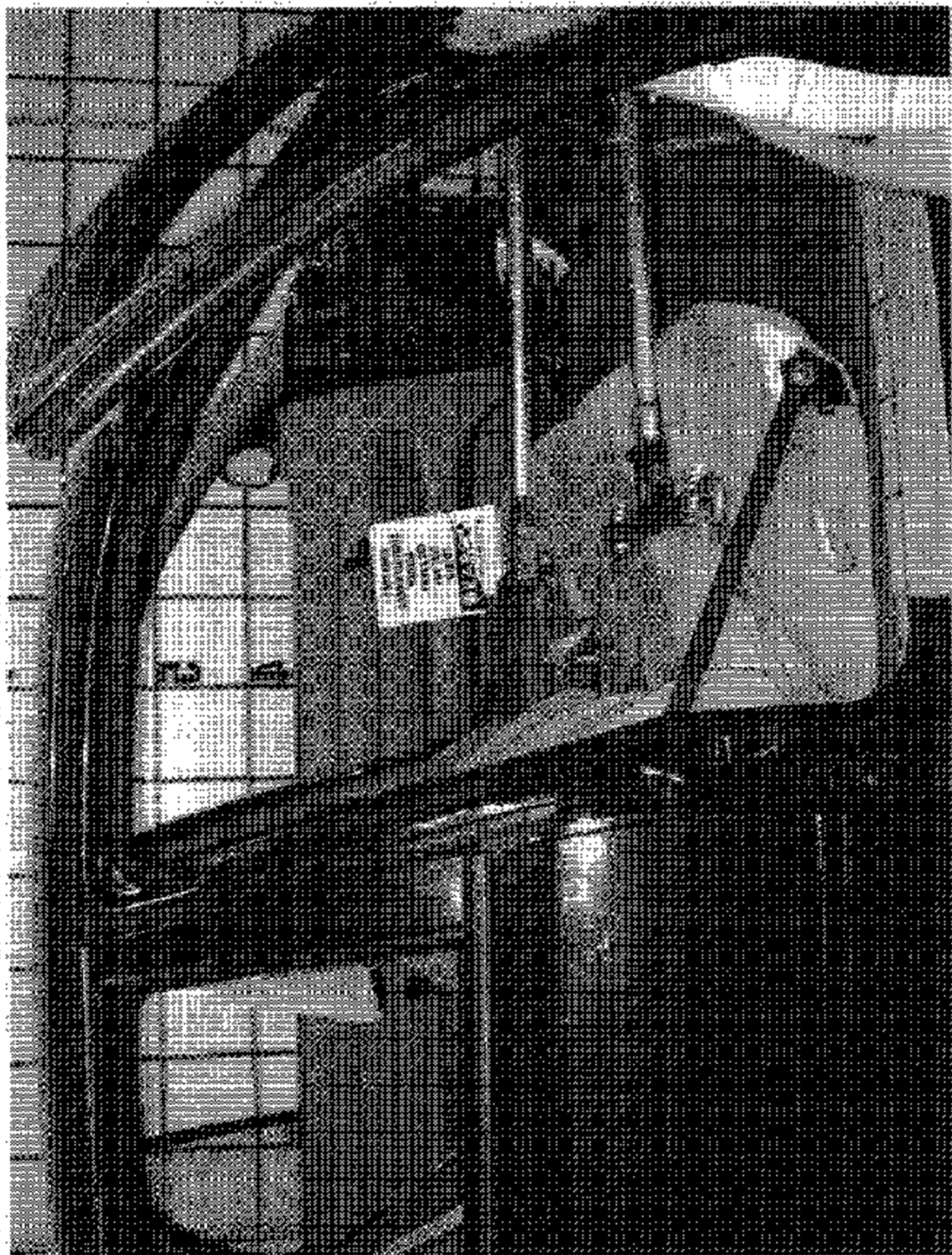


Figure A-21: Forward Load on Seat Frame and Adjusters, Passenger's Side, Pre-Test

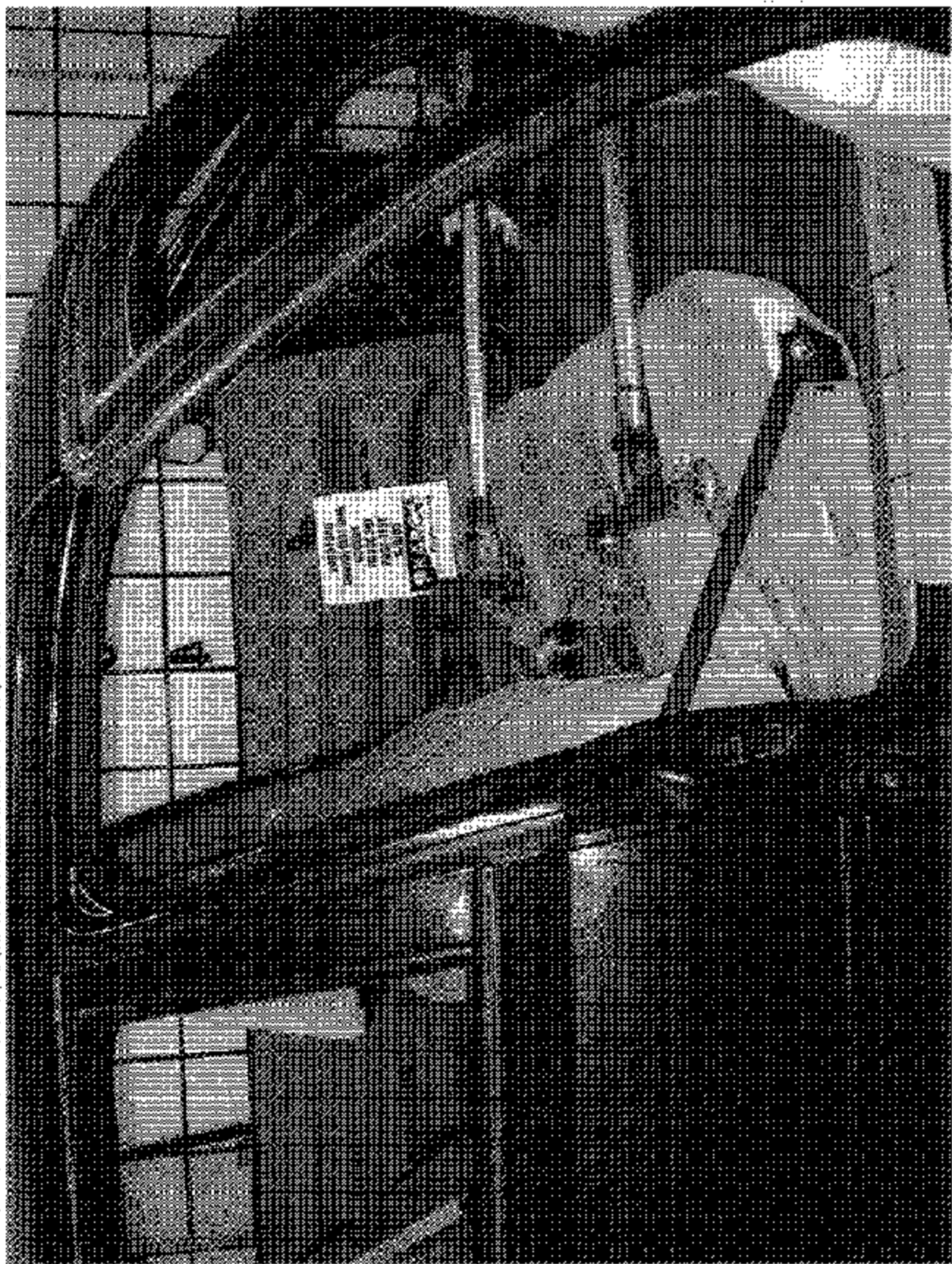


Figure A-22: Forward Load on Seat Frame and Adjusters, Passenger's Side, Post-Test

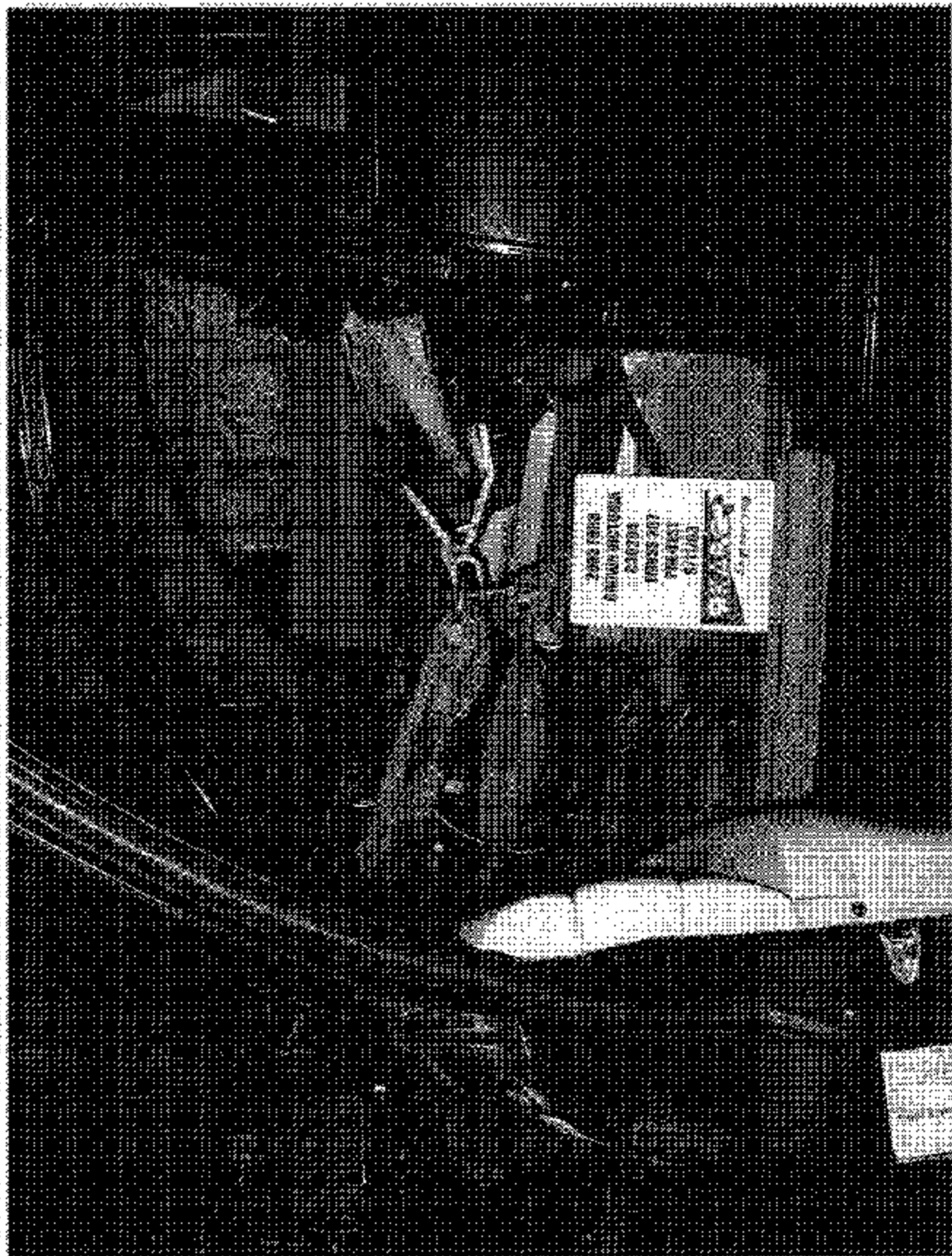


Figure A-23: 207/210 Forward Load on Seat Frame and Adjusters, Driver's Side, Pre-Test

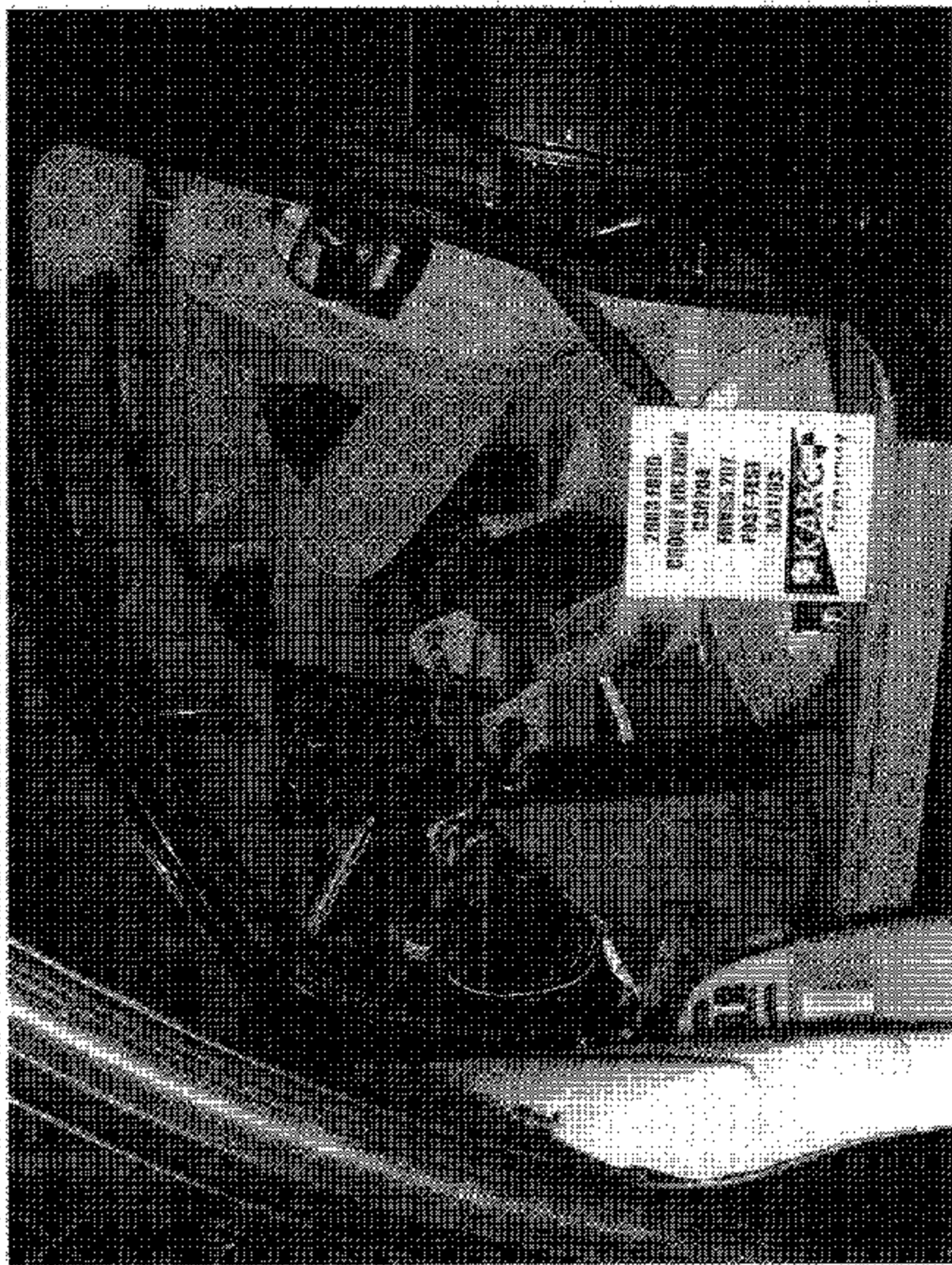


Figure A-24: 207/210 Forward Load on Seat Frame and Adjusters, Driver's Side, Post-Test



Figure A-26: 207/210 Forward Load on Seat Frame and Adjusters, Driver's Side, Post-Test

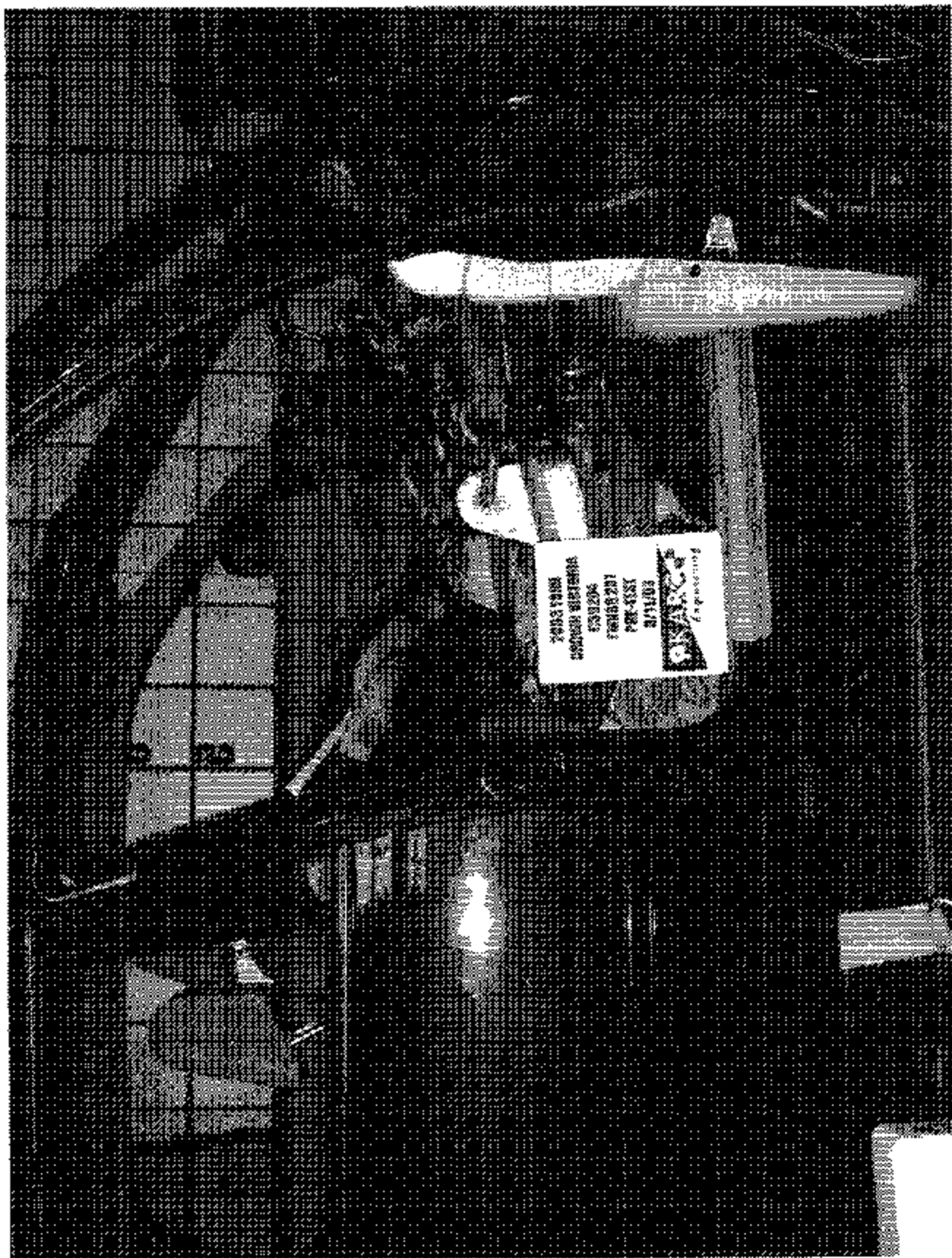


Figure A-27: 207/210 Forward Load on Seat Frame and Adjusters, Passenger's Side, Pre-Test

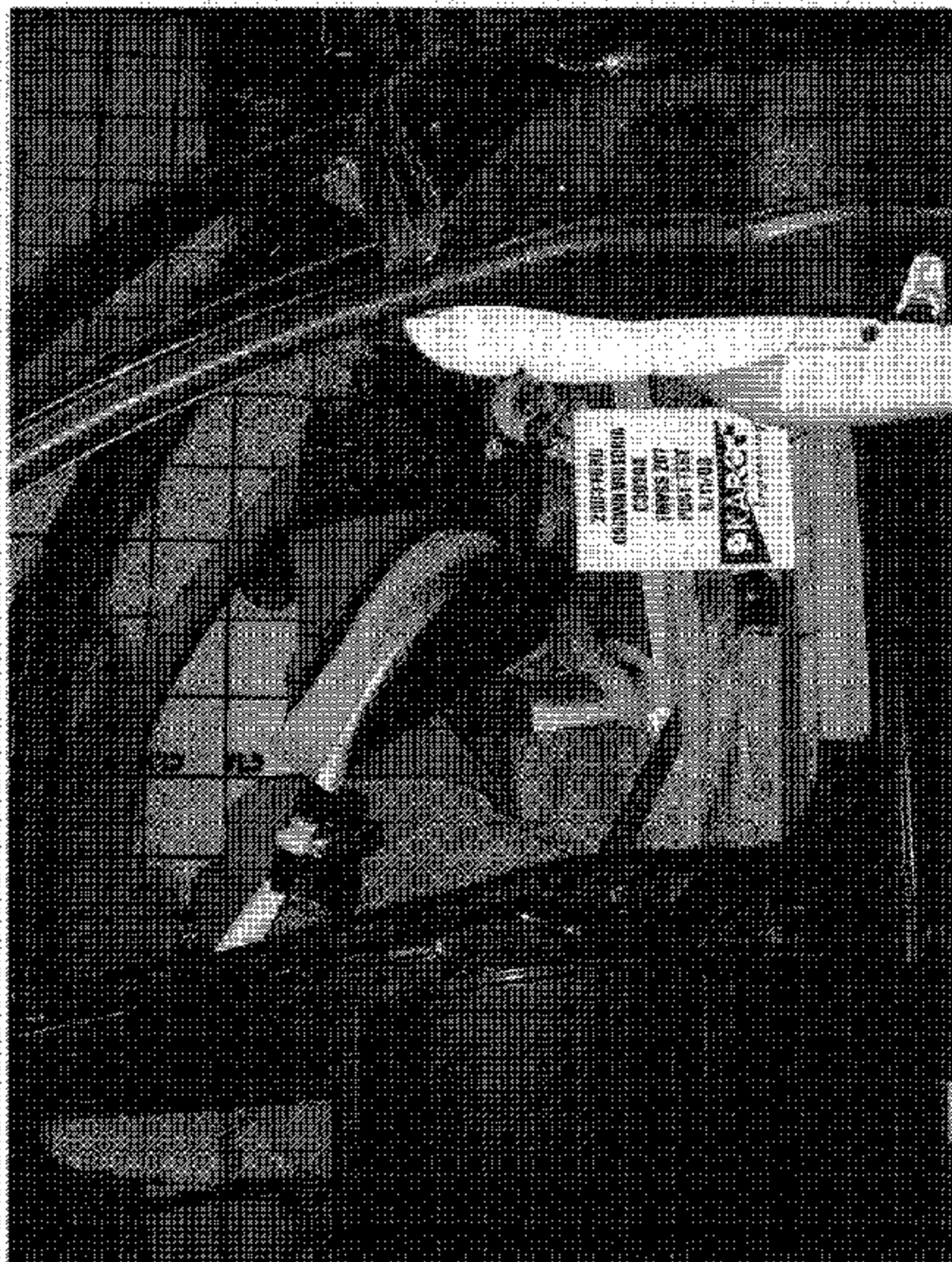


Figure A-28: 207/210 Forward Load on Seat Frame and Adjusters, Passenger's Side, Post-Test

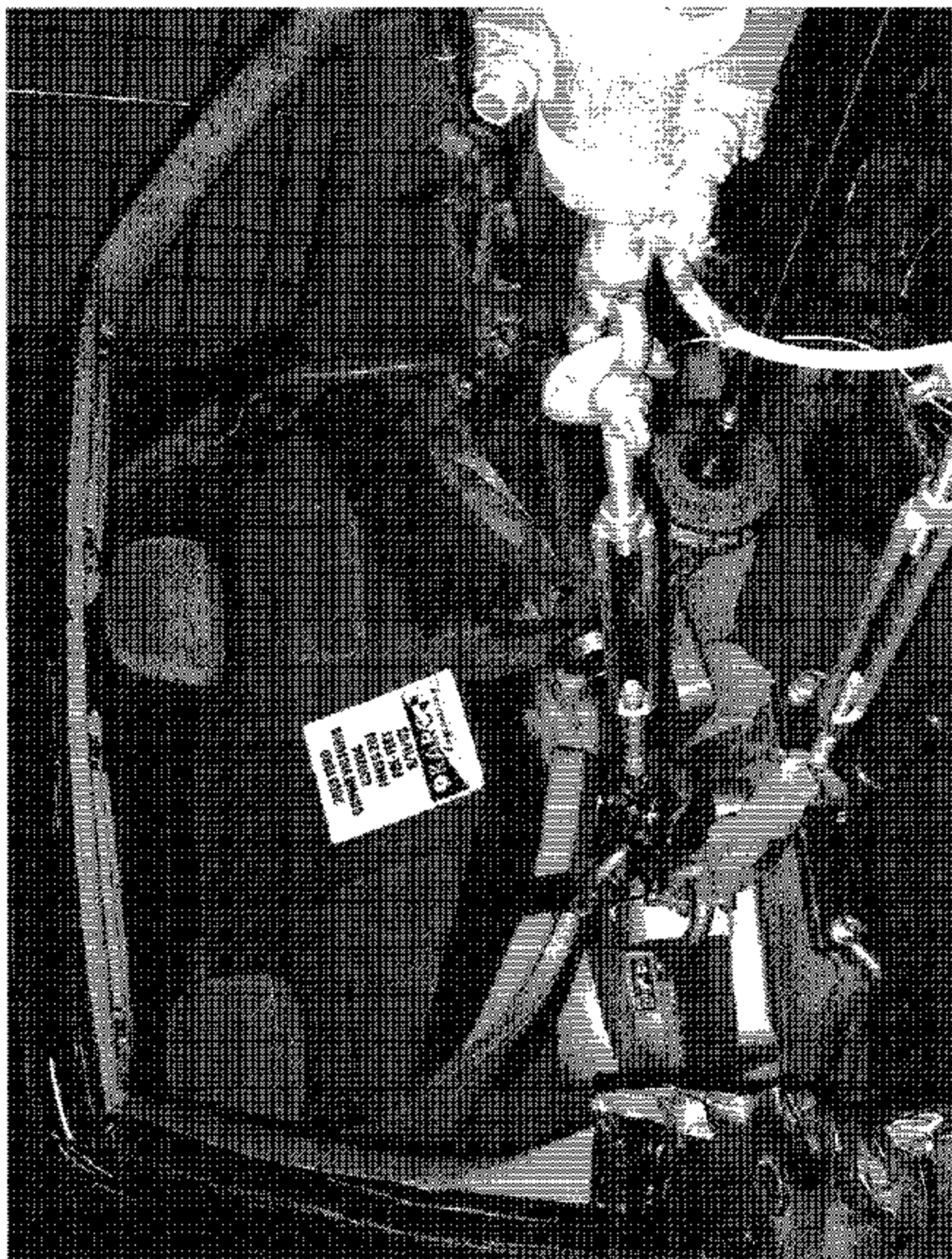


Figure A-29: 207/210 Forward Load on Seat Frame and Adjusters, Passenger's Side, Pre-Test

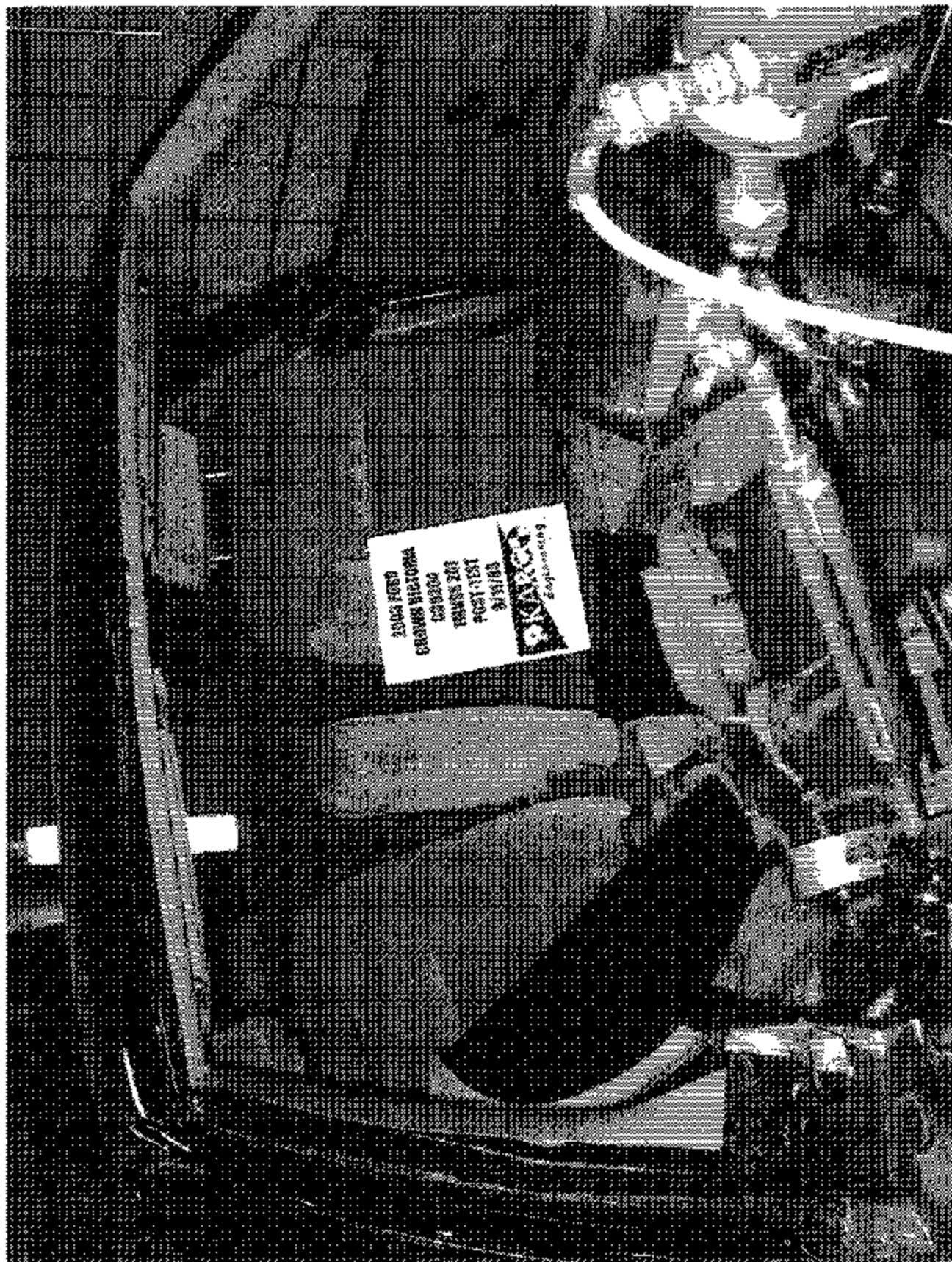


Figure A-30: 207/210 Forward Load on Seat Frame and Adjusters, Passenger's Side, Post-Test



Figure A-31: Aft Load on Seat Frame and Adjusters, Driver's Side Rear, Pre-Test



Figure A-32: Aft Load on Seat Frame and Adjusters, Driver's Side Rear, Post-Test

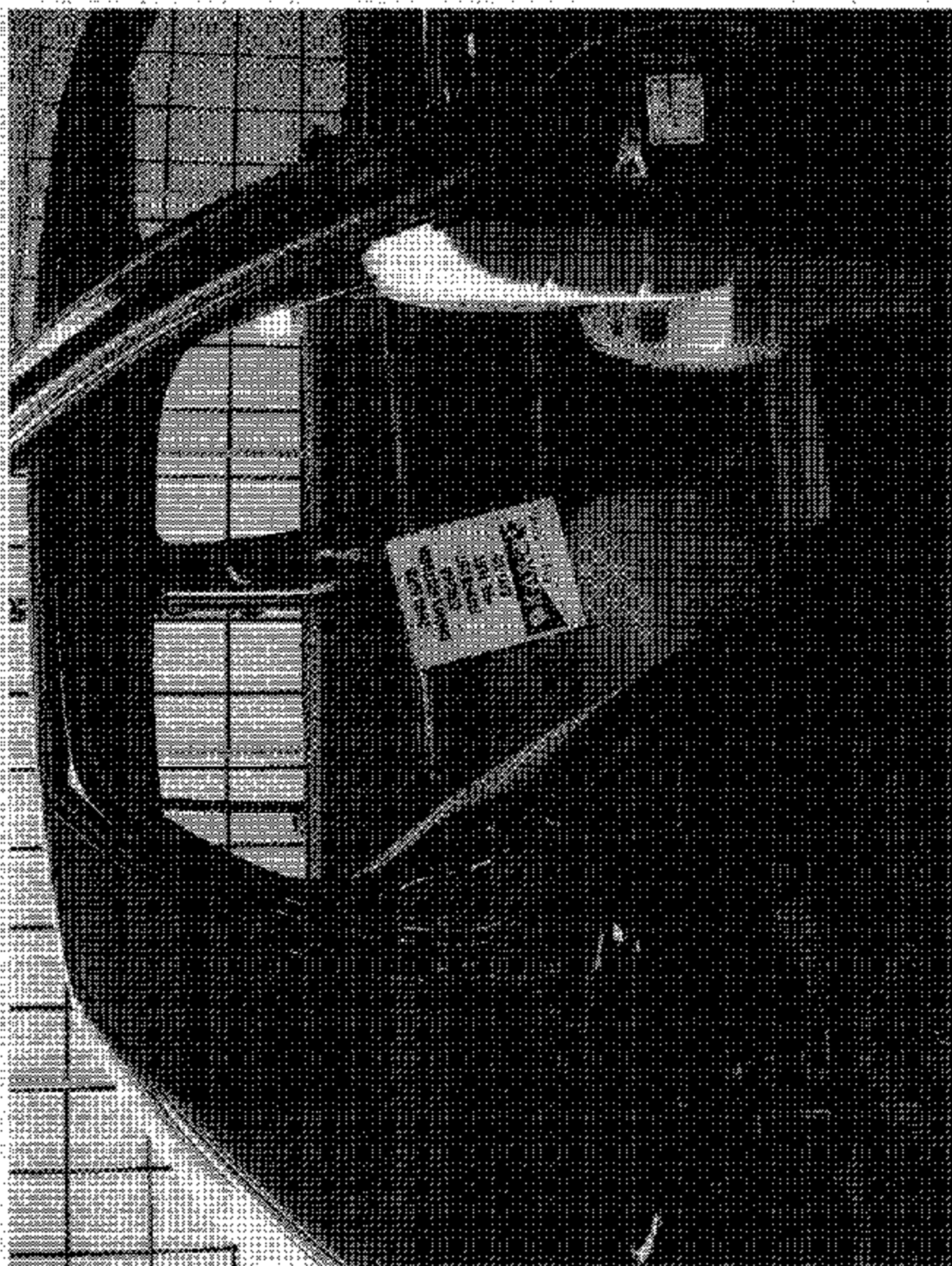


Figure A-33: Alt Load on Seat Frame and Adjusters; Passenger's Side Rear, Pre-Test

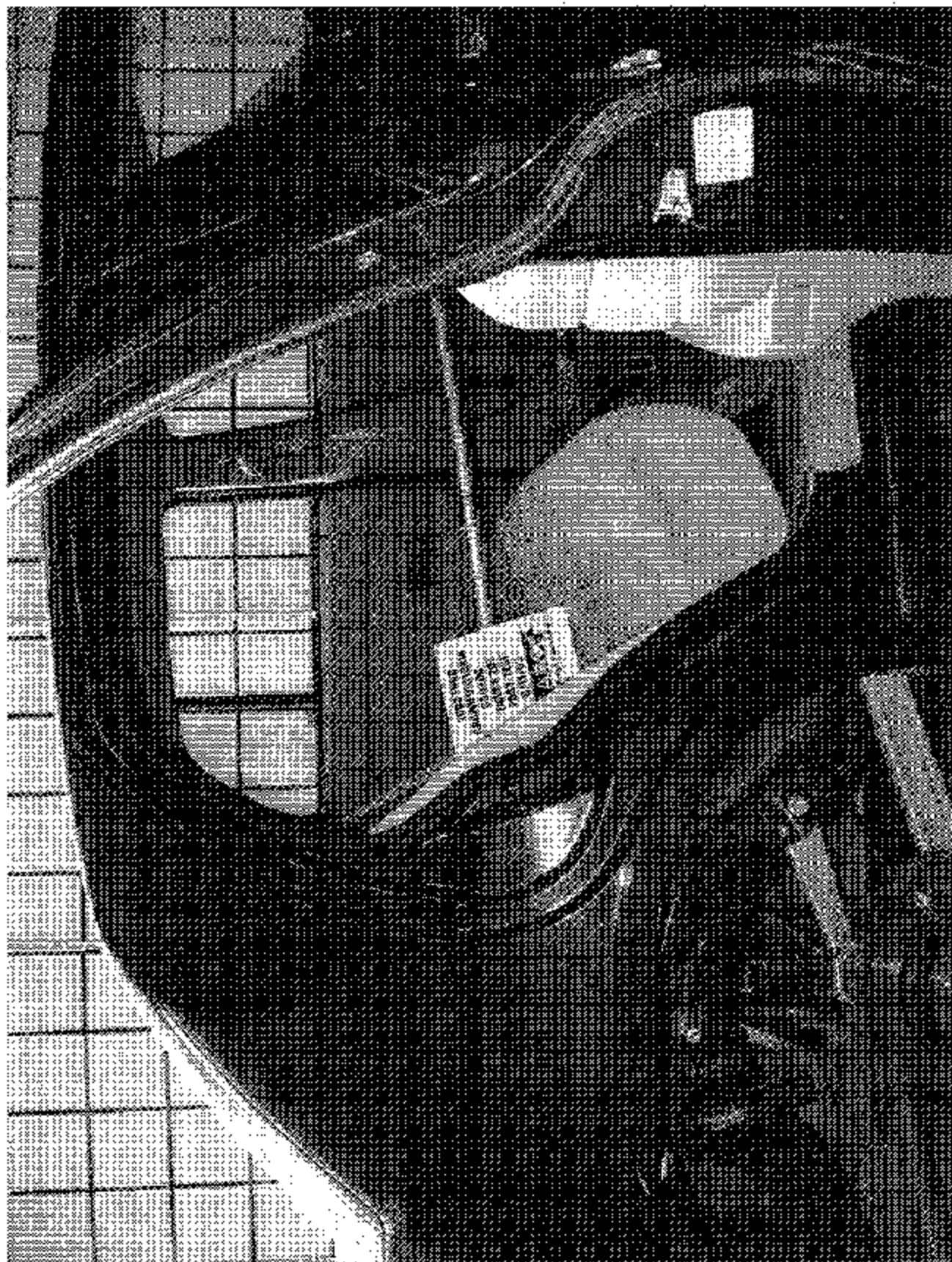


Figure A-34. Aft Load on Seat Frame and Adjusters, Passenger's Side Rear, Post-Test



Figure A-35: Forward Load on Seat Frame and Adjusters, Driver's Side Rear, Pre-Test

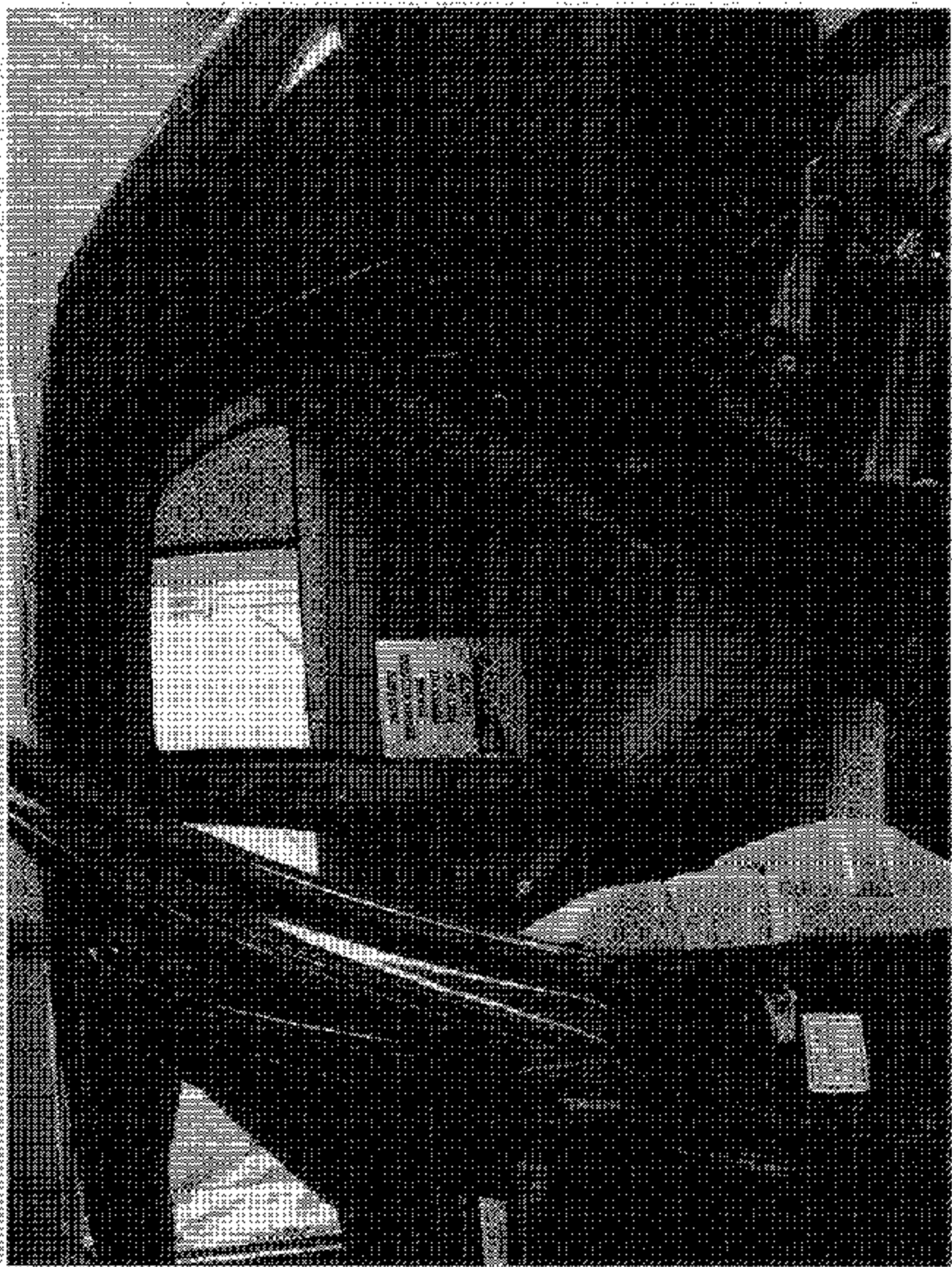


Figure A-36: Forward Load on Seat Frame and Adjusters, Driver's Side Rear, Post-Test

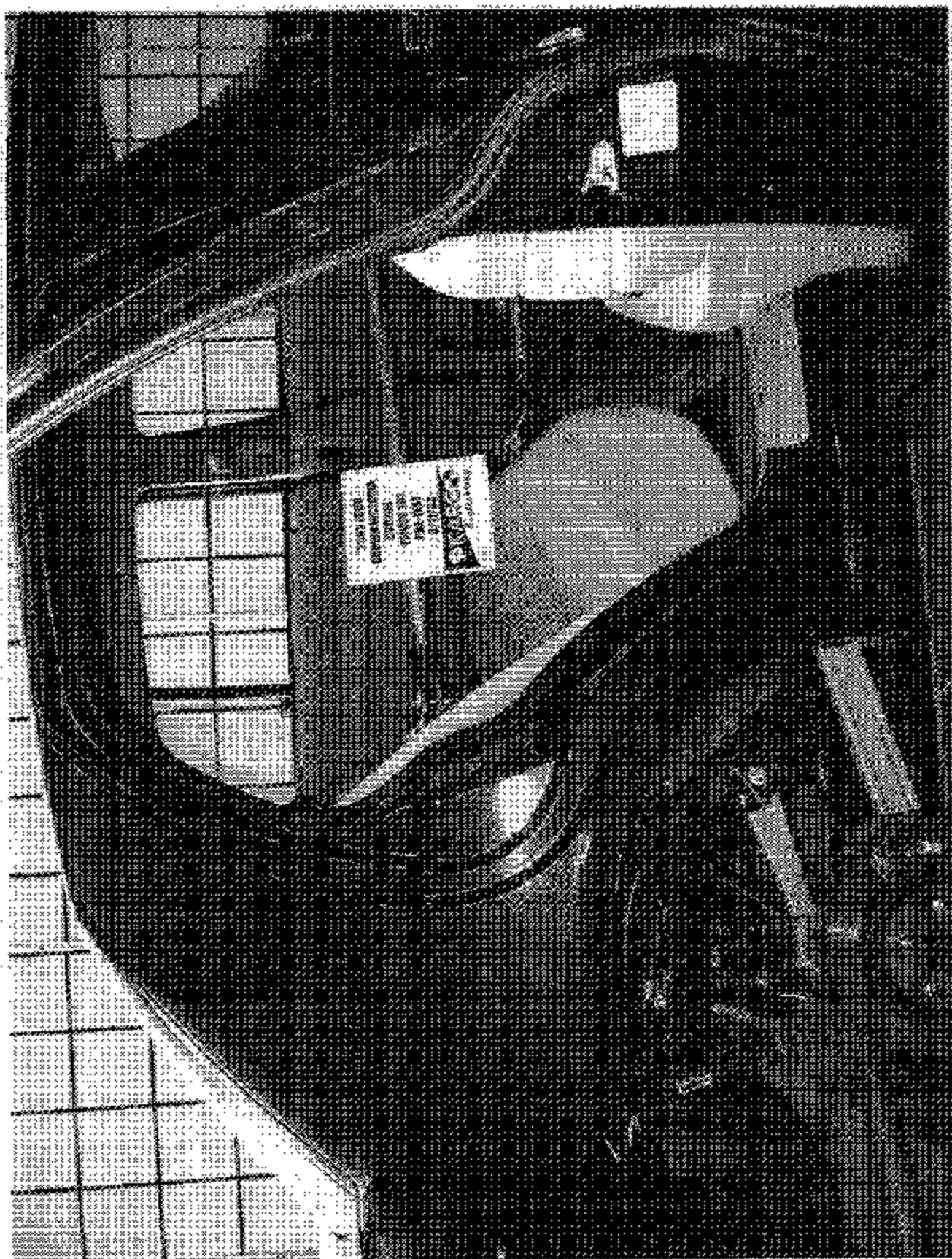


Figure A-37: Forward Load on Seat Frame and Adjusters, Passenger's Side Rear, Pre-Test

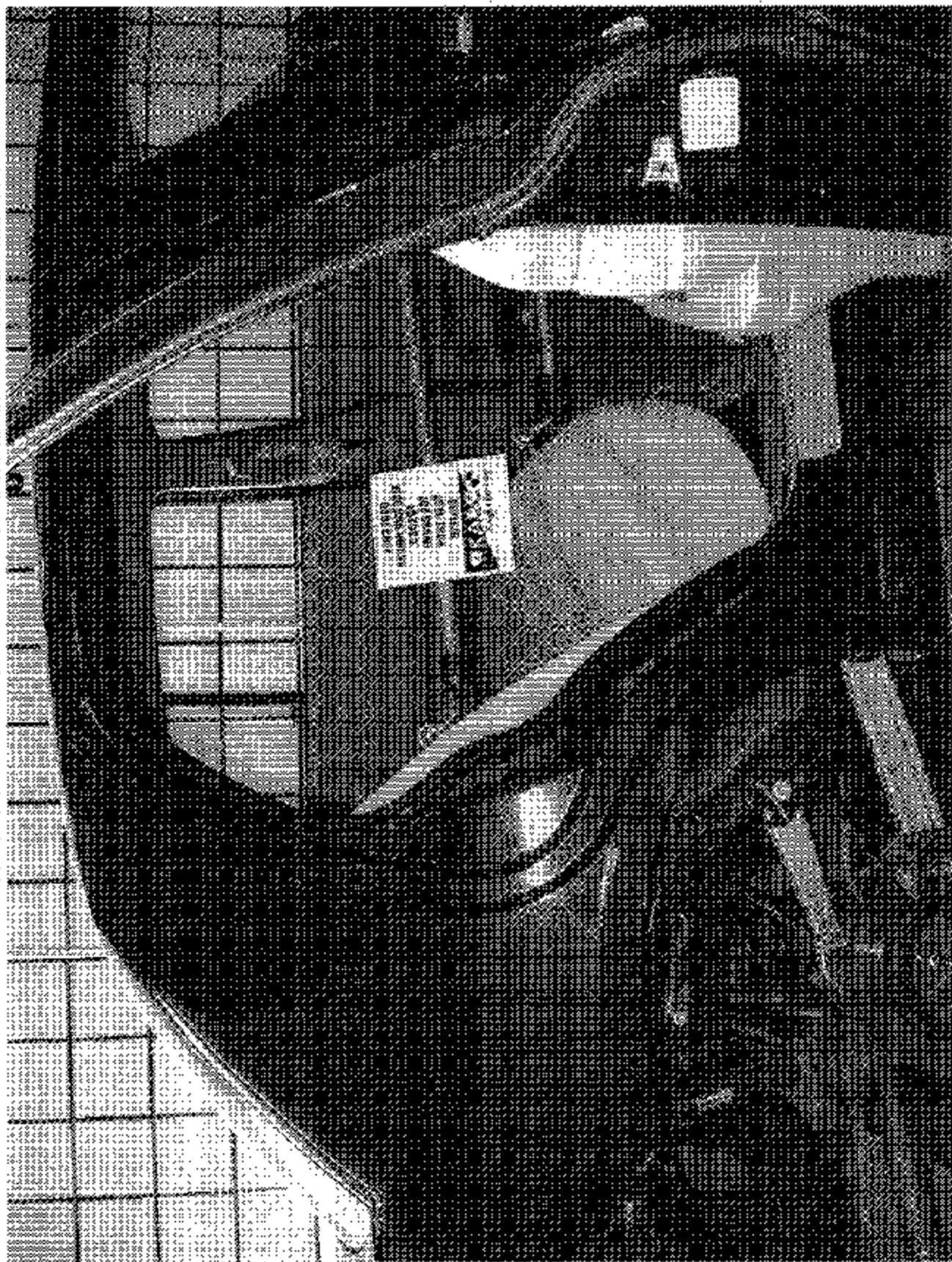


Figure A-38: Forward Load on Seat Frame and Adjusters, Passenger's Side Rear, Post-Test

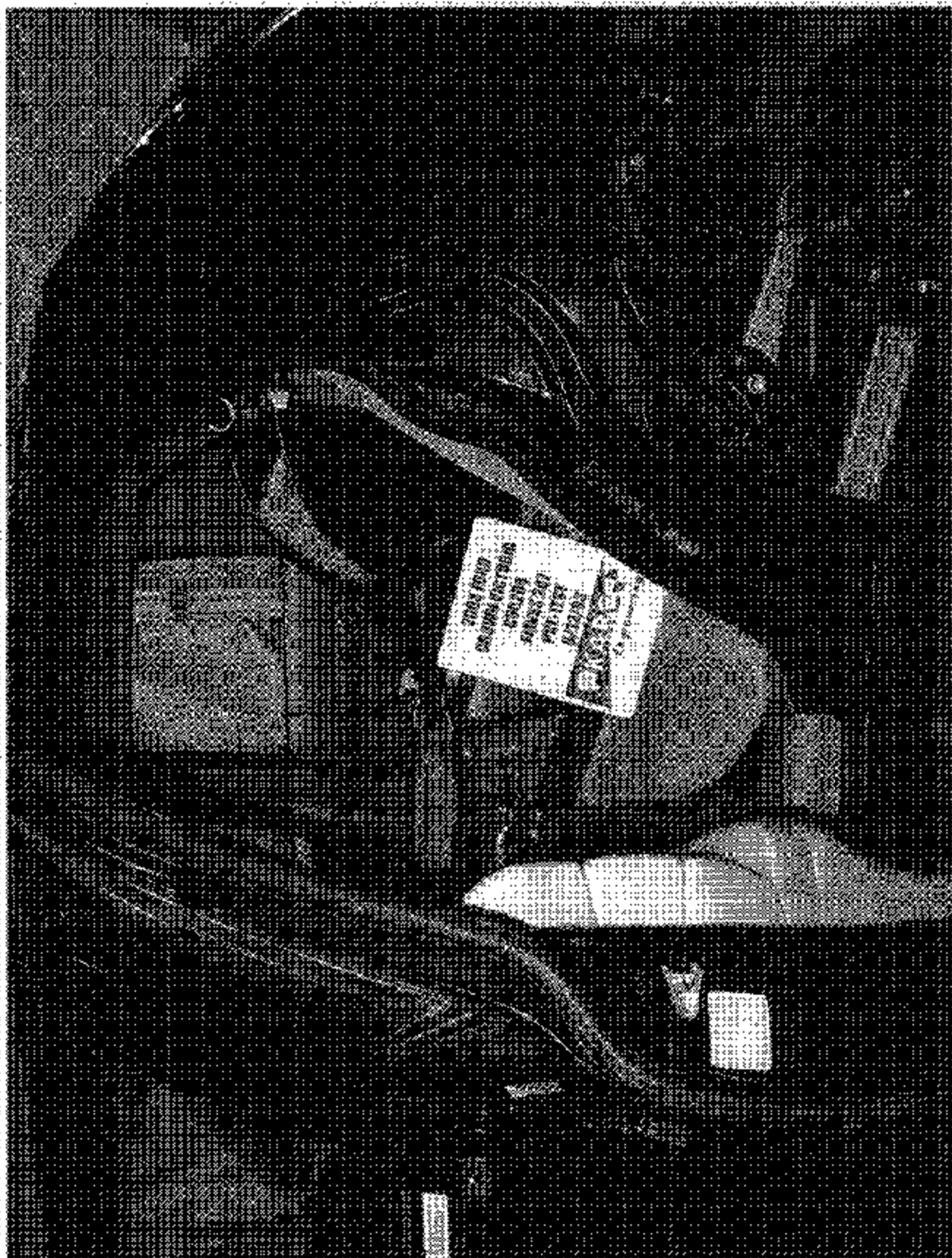


Figure A-39: 207/216 Forward Load on Seat Frame and Adjusters, Driver's Side Rear, Pre-Test

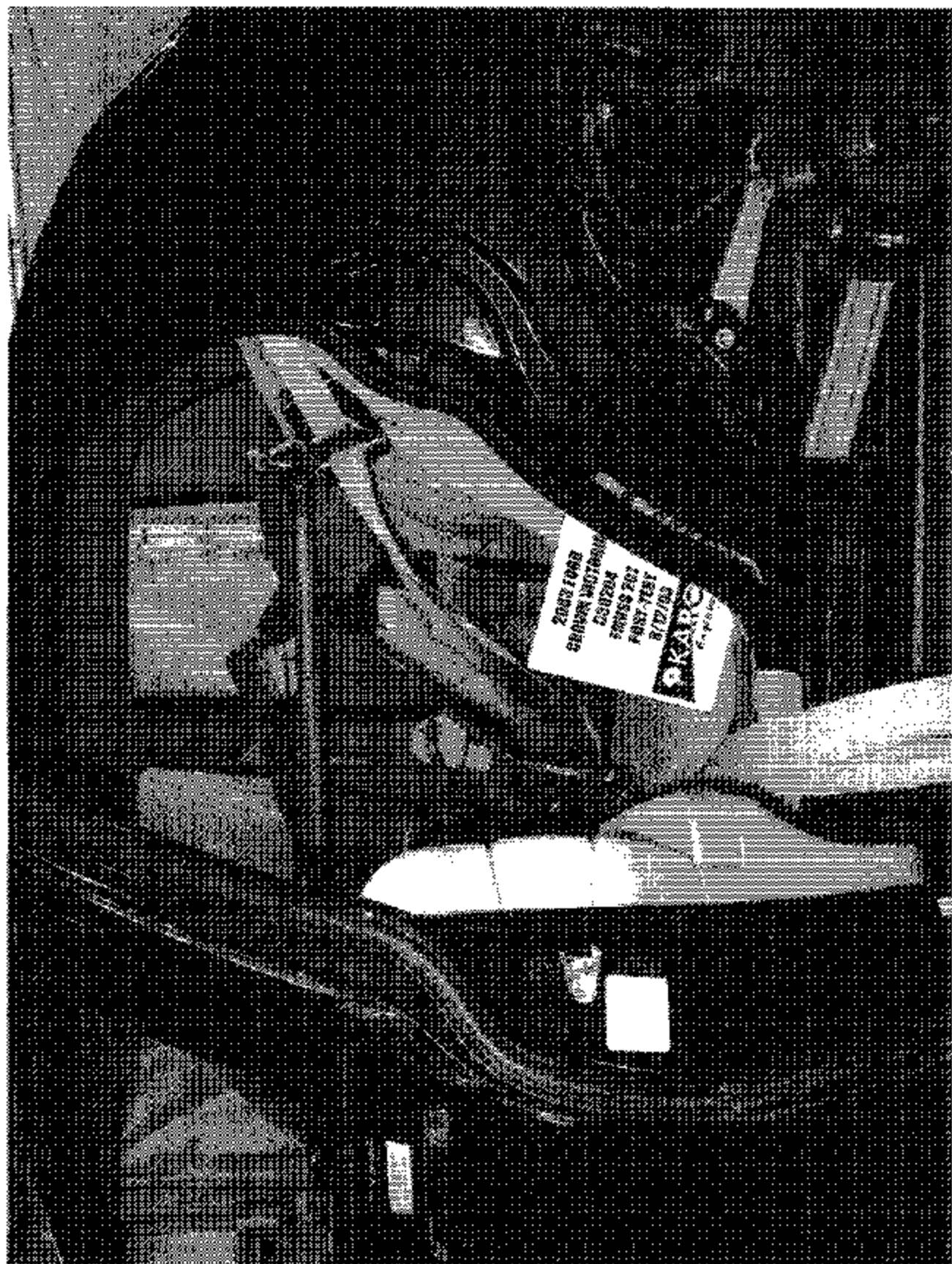


Figure A-40: 207/210 Forward Load on Seat Frame and Adjusters, Driver's Side Rear, Post-Test

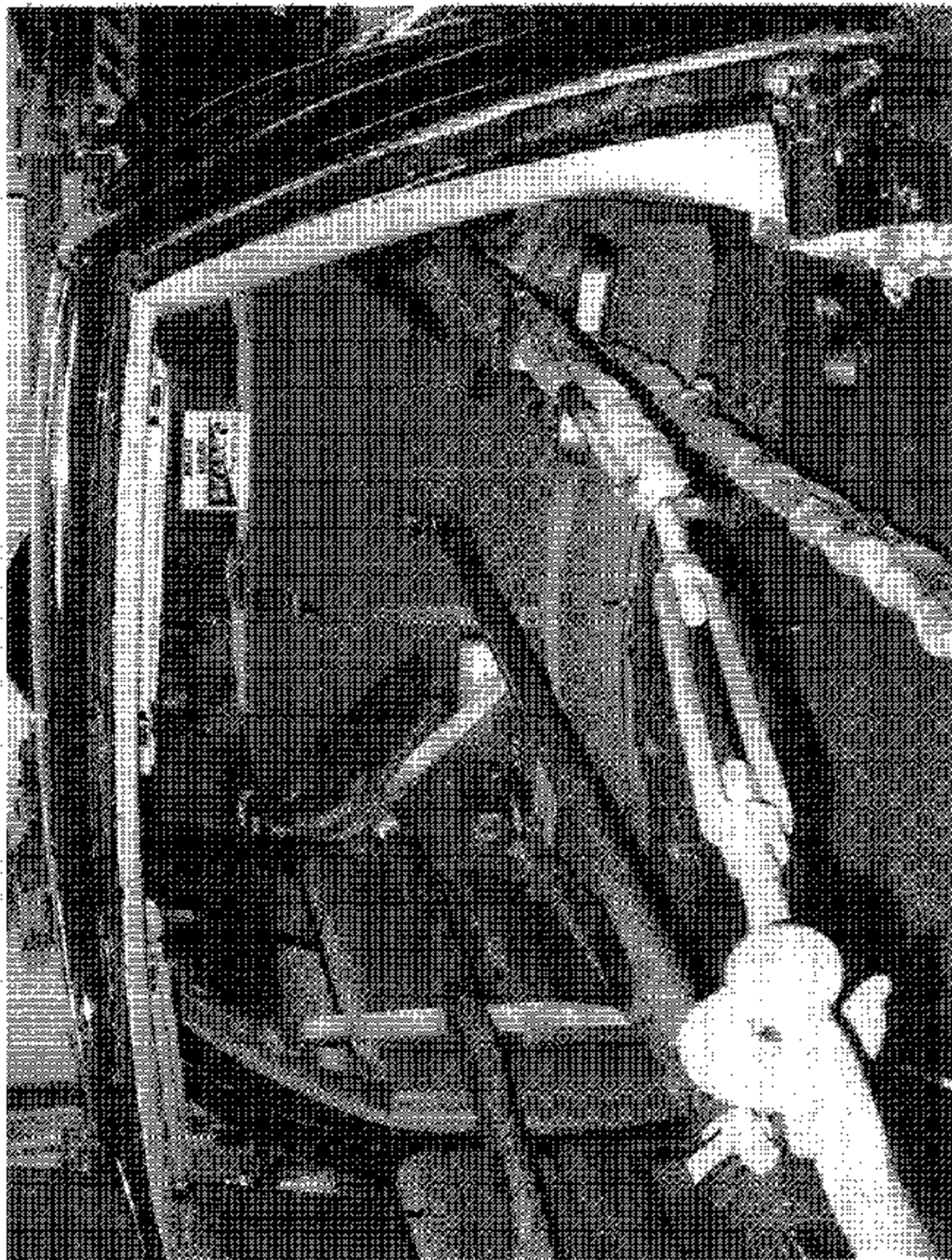


Figure A-41: 207/210 Forward Load on Seat Frame and Adjusters, Driver's Side Rear, Pre-Test



Figure A-42: 207/210 Forward Load on Seat Frame and Adjusters, Driver's Side Rear, Post-Test



Figure A-43: 207/210 Forward Load on Seat Frame and Adjusters, Passenger's Side Rear, Pre-Test



Figure A-44: 207/210 Forward Load on Seat Frame and Adjusters, Passenger's Side Rear, Post-Test

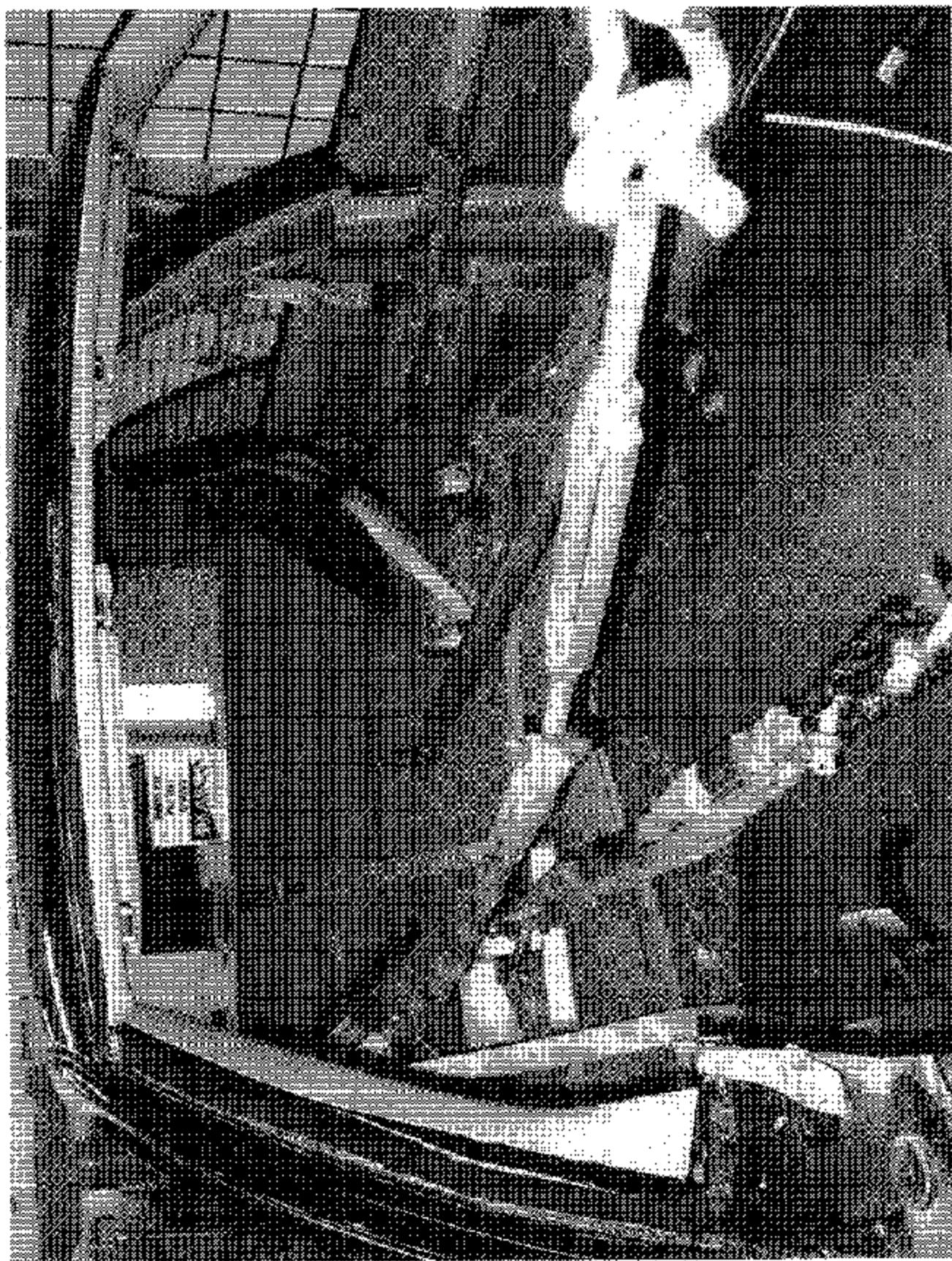


Figure A-45: Forward Load on Seat Frame and Adjusters, Passenger's Side Rear, Pre-Test

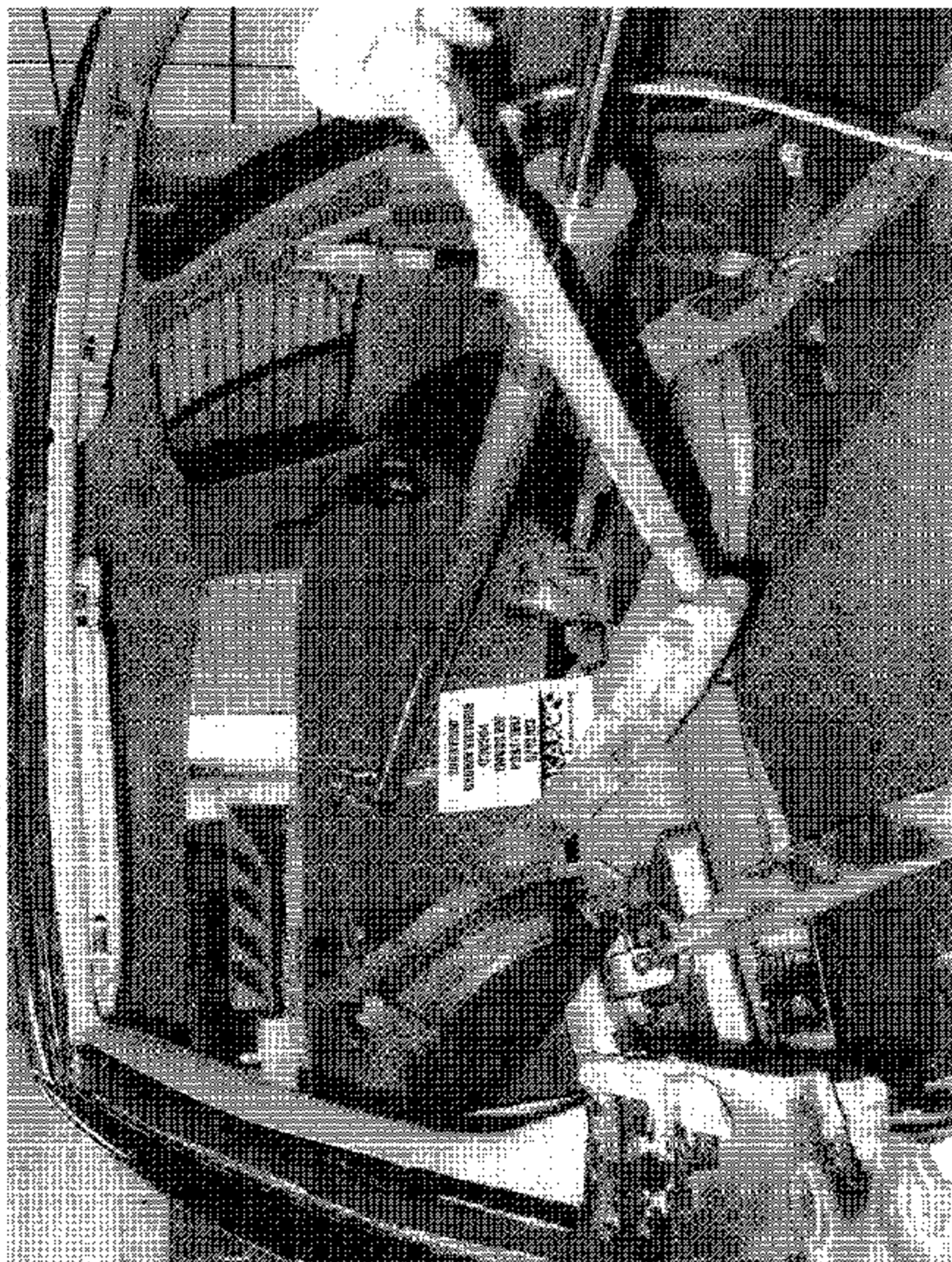


Figure A-46: Forward Load on Seat Frame and Adjusters, Passenger's Side Rear, Post-Test

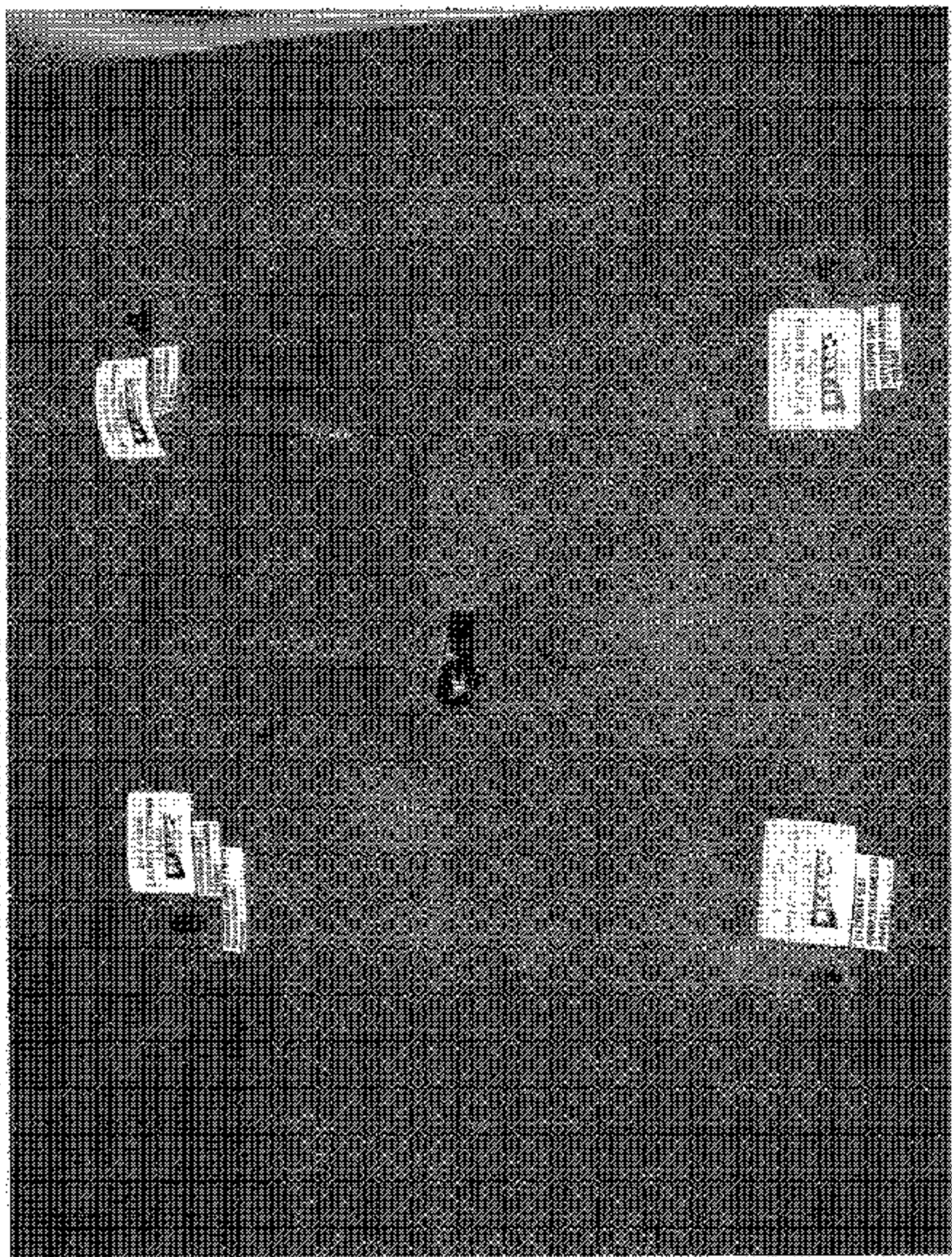


Figure A-47: Floor Pan Anchors, Left Front Seat Overall, Pre-Test

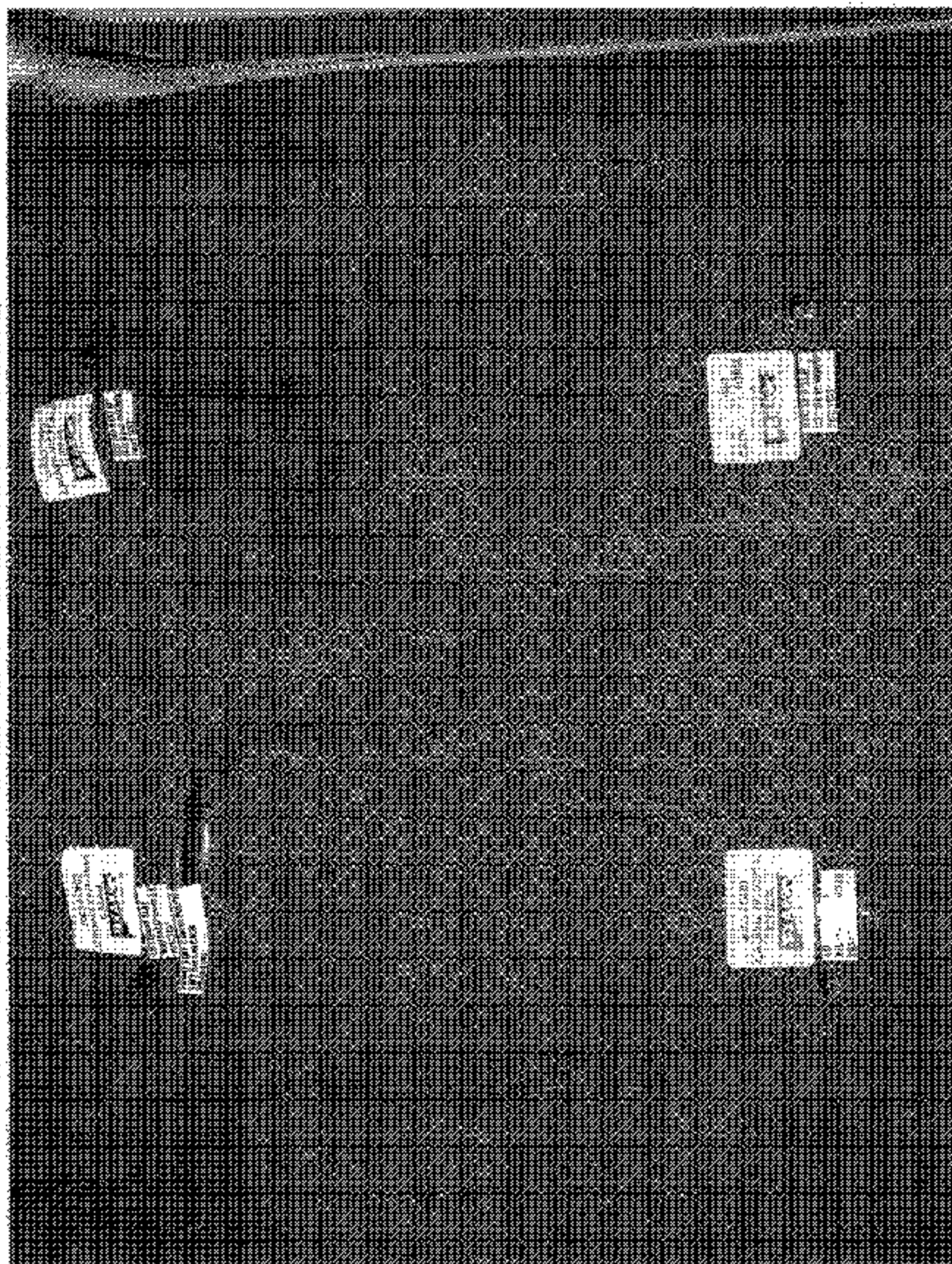


Figure A-48: Floor Pan Anchors, Left Front Seat Overall, Post-Test



Figure A-49: Seat Anchors, Left Front Seat Overall, Pre-Test

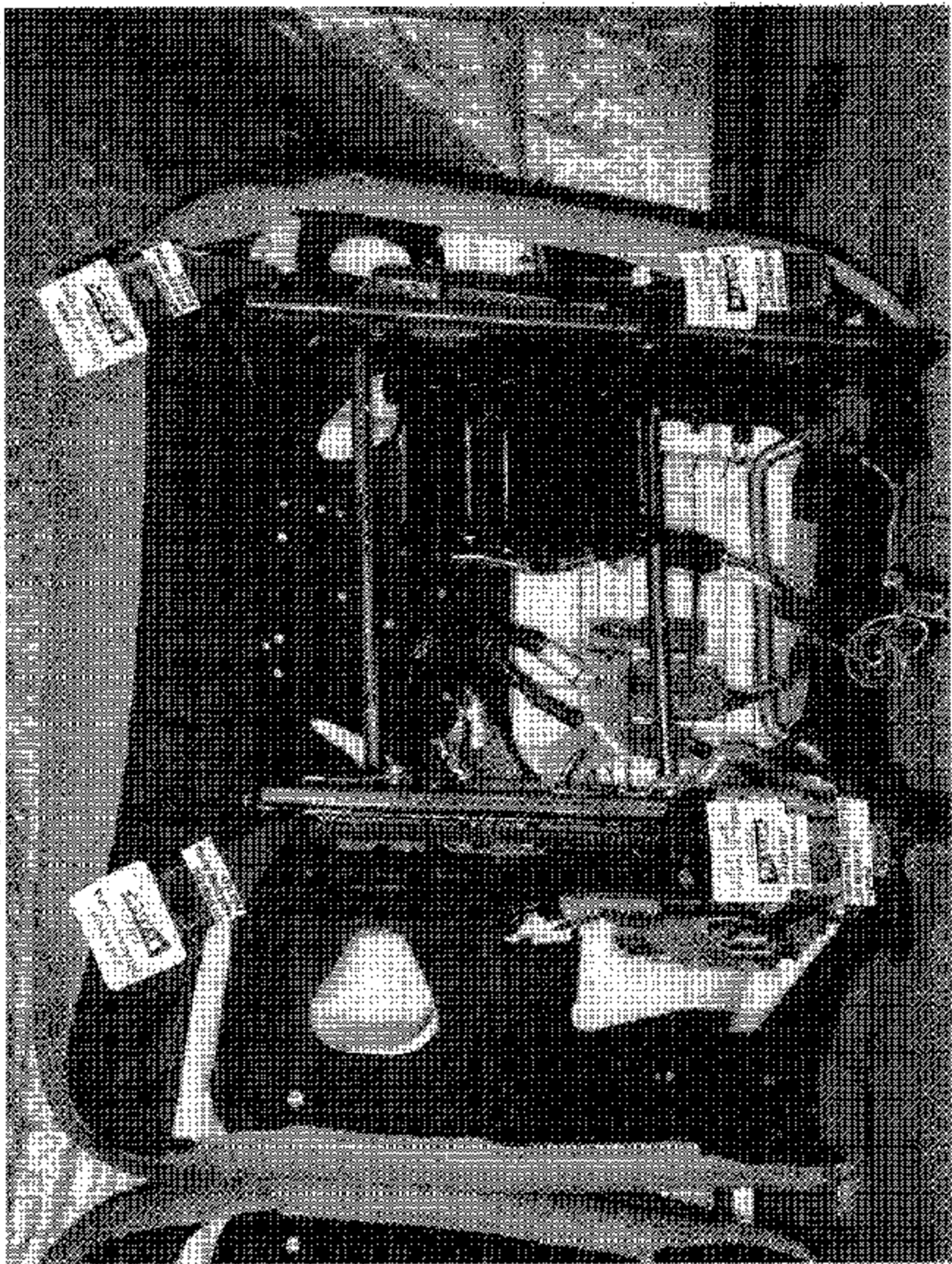


Figure A-50: Seat Anchors, Left Front Seat Overall, Post-Test

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**LEFT FRONT SEAT
LEFT FRONT ANCHOR
PRETEST**

Figure A-51: Floor Pan Anchor, Left Front Seat, Pre-Test

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LEFT FRONT SEAT
LEFT FRONT ANCHOR
POST TEST

Figure A-52: Floor Pan Anchor, Left Front Seat, Post-Test

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**LEFT FRONT SEAT
LEFT FRONT ANCHOR
PRETEST**

Figure A-53: Seat Anchor, Left Front Seat, Pre-Test



Figure A-54: Seat Anchor, Left Front Seat, Post-Test

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**LEFT FRONT SEAT
RIGHT FRONT ANCHOR
PRETEST**

Figure A-55: Floor Pan Anchor, Left Front Seat, Pre-Test

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**LEFT FRONT SEAT
RIGHT FRONT ANCHOR
POST TEST**

Figure A-56: Floor Pan Anchor, Left Front Seat, Post-Test

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LEFT FRONT SEAT
RIGHT FRONT ANCHOR
PRETEST

Figure A-57: Seat Anchor, Left Front Seat, Pre-Test

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engineering

LEFT FRONT SEAT
RIGHT FRONT ANCHOR
POST TEST

Figure A-56: Seat Anchor, Left Front Seat, Post-Test

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PKARCO
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**LEFT FRONT SEAT
LEFT REAR ANCHOR
PRETEST**

Figure A-59: Floor Pan Anchor, Left Front Seat, Pre-Test

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LEFT FRONT SEAT
LEFT REAR ANCHOR
POST TEST

Figure A-60: Floor Pan Anchor, Left Front Seat, Post-Test

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LEFT FRONT SEAT
LEFT REAR ANCHOR
PRETEST



Figure A-61: Seat Anchor, Left Front Seat, Pre-Test

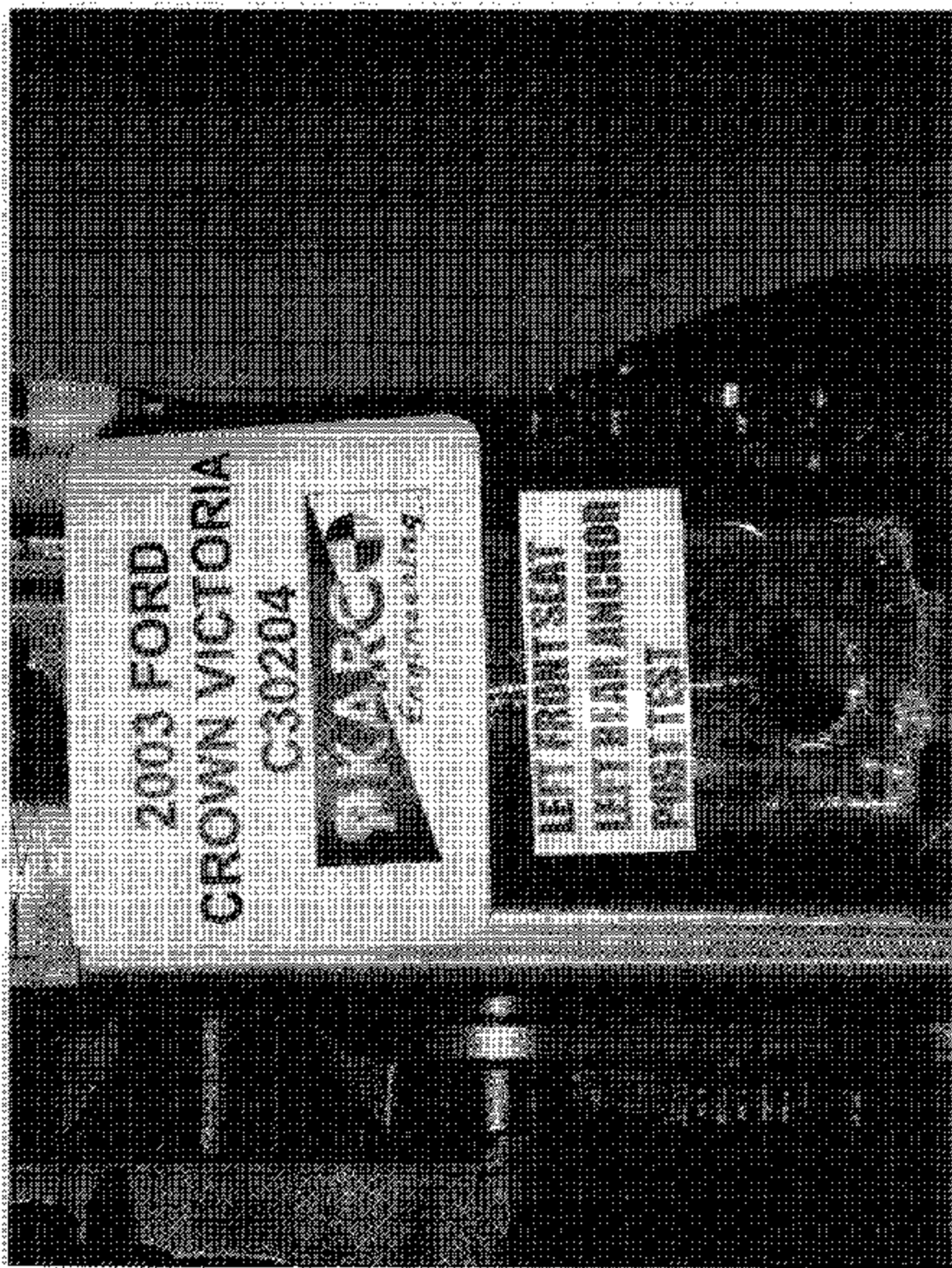


Figure A-82: Seat Anchor, Left Front Seat, Post-Test

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**LEFT FRONT SEAT
RIGHT REAR ANCHOR
PRETEST**

**FRONT SEAT, CENTER POSITION
LEFT BELT ANCHOR
PRETEST**

Figure A-63 Floor Pan Anchor, Left Front Seat, Pre-Test

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**LEFT FRONT SEAT
RIGHT REAR ANCHOR
POST TEST**

**FRONT SEAT, CENTER POSITION
LEFT BELT ANCHOR
POST TEST**

Figure A-64: Floor Pan Anchor, Left Front Seat, Post-Test

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Q-MARC
REGISTERED

LEFT FRONT SEAT
RIGHT REAR ANCHOR
PRETEST

FRONT SEAT, CENTER POSITION
LEFT BELT ANCHOR
PRETEST

Figure A-65: Seat Anchor, Left Front Seat, Pre-Test



Figure A-56: Seat Anchor, Left Front Seat, Post-Test

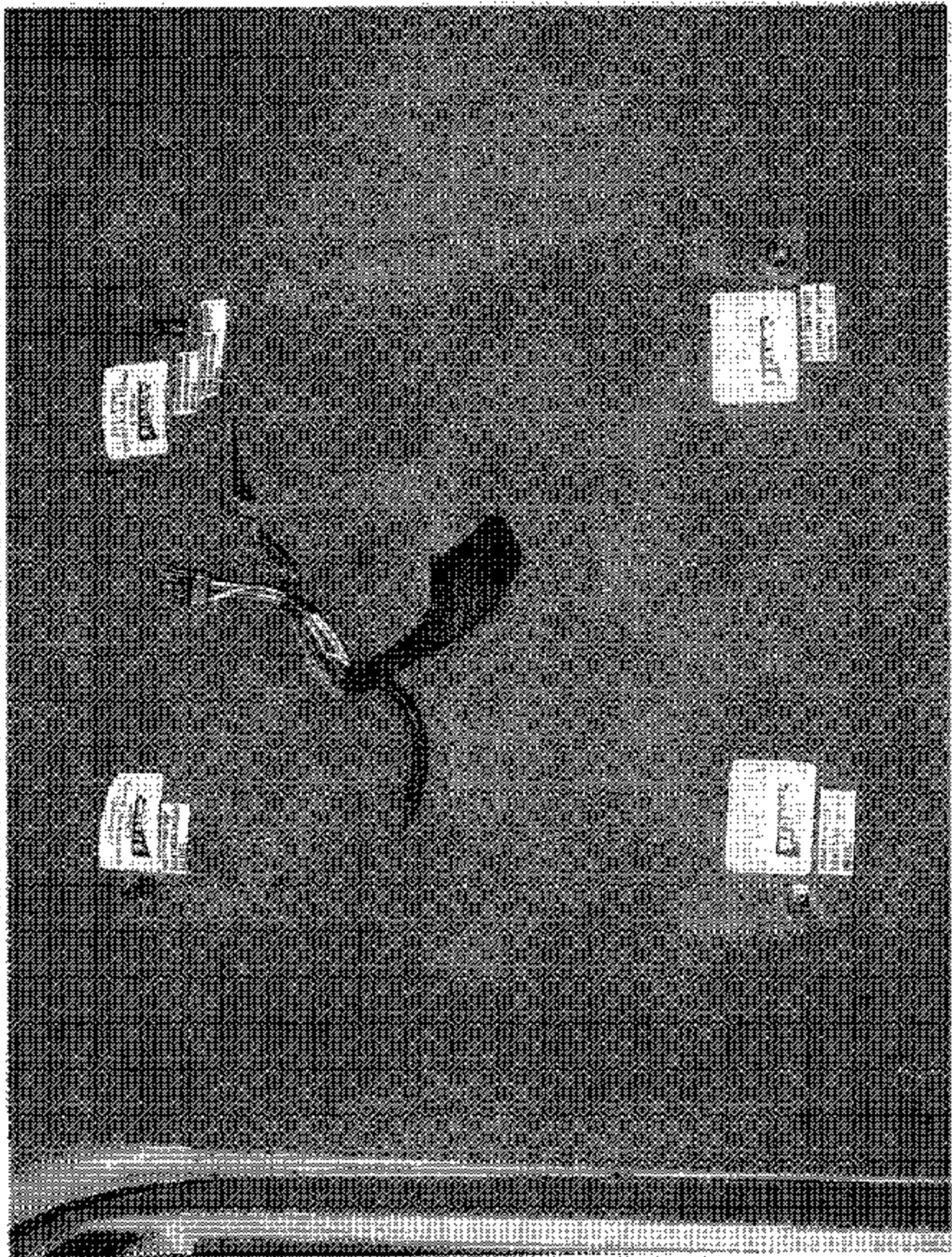


Figure A-67: Floor Pan Anchors, Right Front Seat Overall, Pre-Test

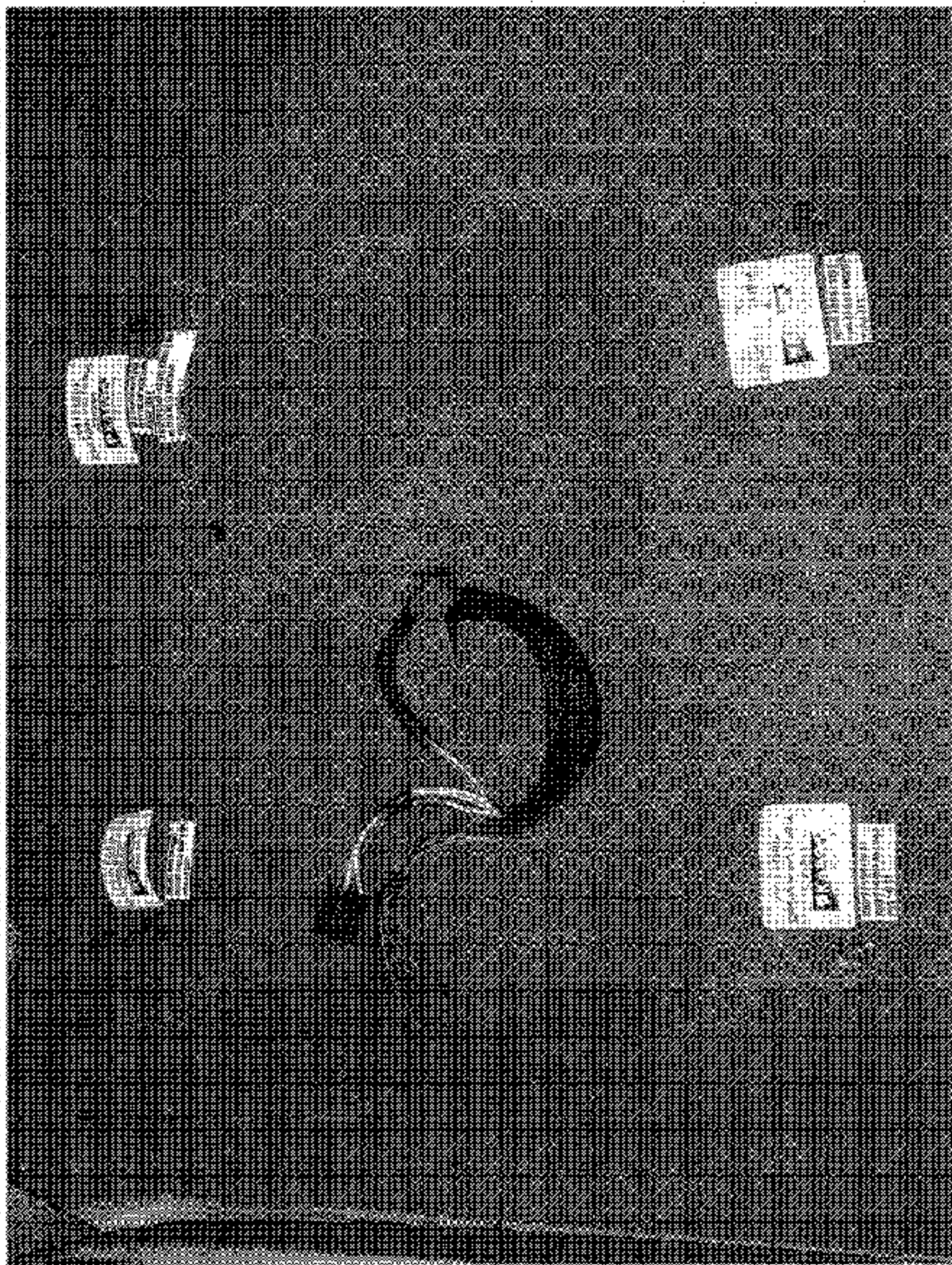


Figure A-68: Floor Pan Anchors, Right Front Seat Overall, Post-Test

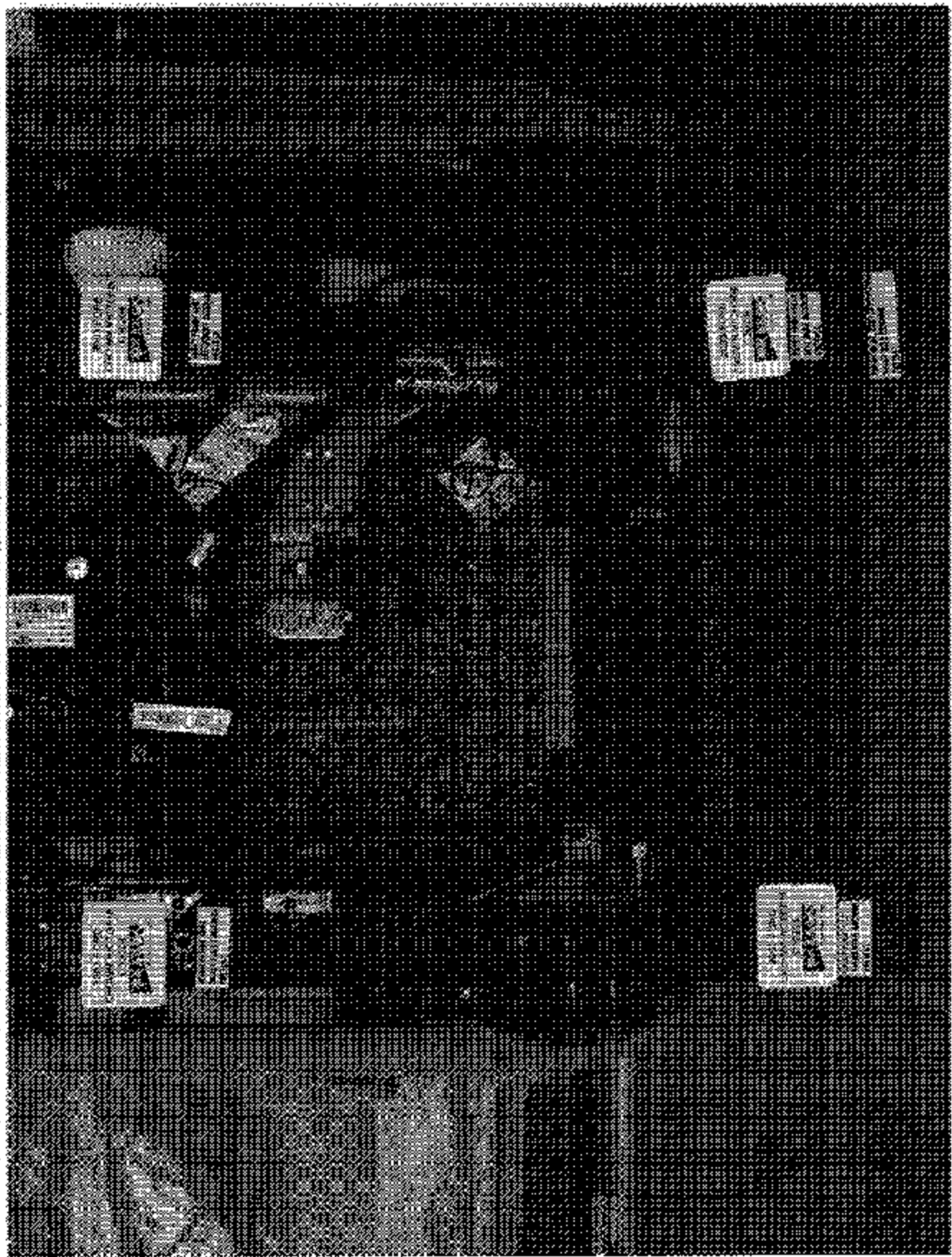


Figure A-69: Seat Anchors, Right Front Seat Overall, Pre-Test



Figure A-70: Seat Anchors, Right Front Seat Overall, Post-Test

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LEFT FRONT SEAT
RIGHT FRONT SEAT
PRE-TEST

Figure A-71: Floor Pan Anchor, Right Front Seat, Pre-Test

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RIGHT FRONT SEAT
LEFT FRONT ANCHOR
POST TEST

Figure A-72. Floor Pan Anchor, Right Front Seat, Post-Test

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OKARC

Engineering

**RIGHT FRONT SEAT
LEFT FRONT ANCHOR
PRETEST**

Figure A-75: Seat Anchor, Right Front Seat, Pre-Test

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RIGHT FRONT SEAT
LEFT FRONT ANCHOR
POST TEST

Figure A-74: Seat Anchor: Right Front Seat, Post-Test

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**RIGHT FRONT SEAT
RIGHT FRONT ANCHOR
PRETEST**

Figure A-75: Floor Pan Anchor, Right Front Seat, Pre-Test

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**RIGHT FRONT SEAT
RIGHT FRONT ANCHOR
POST TEST**

Figure A-76: Floor Pan Anchor, Right Front Seat, Post-Test

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RIGHT FRONT SEAT
RIGHT FRONT ANCHOR
PRETEST

Figure A-77: Seat Anchor, Right Front Seat, Pre-Test

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RIGHT FRONT SEAT
RIGHT FRONT ANCHOR
POST TEST

Figure A-78: Seal Anchor, Right Front Seat, Post-Test

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**RIGHT FRONT SEAT
LEFT REAR ANCHOR
PRETEST**

**FRONT SEAT, CENTER POSITION
RIGHT BELT ANCHOR
PRETEST**

Figure A-79: Floor Pan Anchor, Right Front Seat, Pre-Test

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RIGHT FRONT SEAT
LEFT REAR ANCHOR
POST TEST

FRONT SEAT, CENTER POSITION
RIGHT BELT ANCHOR
POST TEST

Figure A-80: Floor Pan Anchor, Right Front Seat, Post-Test

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RIGHT FRONT SEAT
LEFT REAR ANCHOR
PRETEST

FRONT SEAT, CENTER POSITION
RIGHT SEAT ANCHOR
PRETEST

Figure A-81: Seat Anchor, Right Front Seat, Pre-Test

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RIGHT FRONT SEAT
LEFT REAR ANCHOR
POST TEST

FRONT SEAT, CENTER POSITION
RIGHT BELT ANCHOR
POST TEST

Figure A-82: Floor Pan Anchor, Right Front Seat, Post-Test

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**RIGHT FRONT SEAT
RIGHT REAR ANCHOR
PRETEST**

Figure A-83. Floor Pan Anchor, Right Front Seat, Pre-Test

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**RIGHT FRONT SEAT
RIGHT REAR ANCHOR
POST TEST**

Figure A-84: Floor Pan Anchor, Right Front Seat, Post-Test

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RIGHT FRONT SEAT
RIGHT REAR ANCHOR
PRETEST



Figure A-85: Seat Anchor, Right Front Seat, Pre-Test

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RIGHT FRONT SEAT
RIGHT REAR ANCHOR
POST TEST

Figure A-86: Seat Anchor, Right Front Seat, Post-Test



Figure A-87: Floor Pan Anchors, Rear Seat, Seat Cushion Overall, Pre-Test



Figure A-88. Floor Pan Anchors, Rear Seat, Seat Cushion Overall, Post-Test

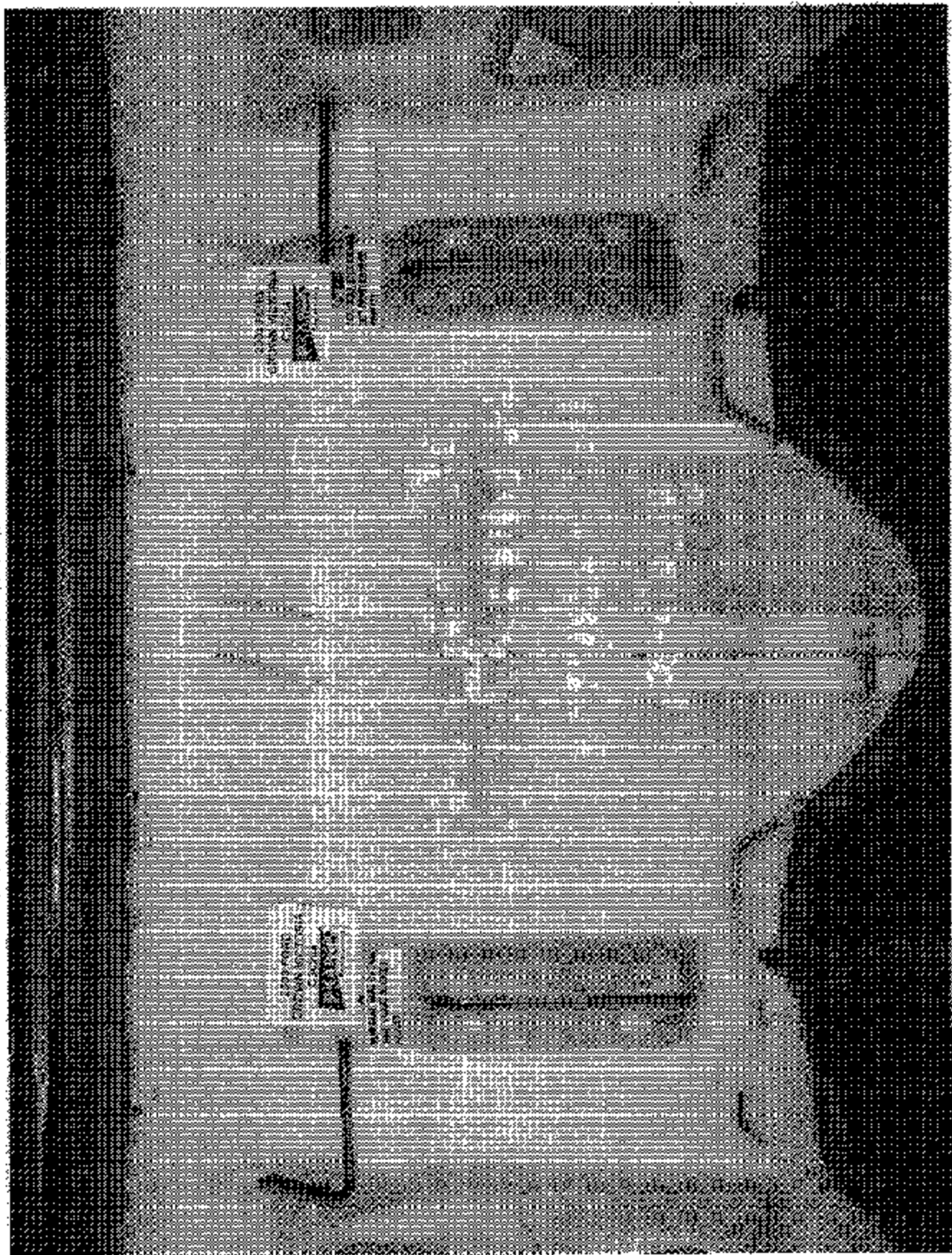


Figure A-89: Seat Anchors, Rear Seat, Seat Cushion Overall, Pre-Test

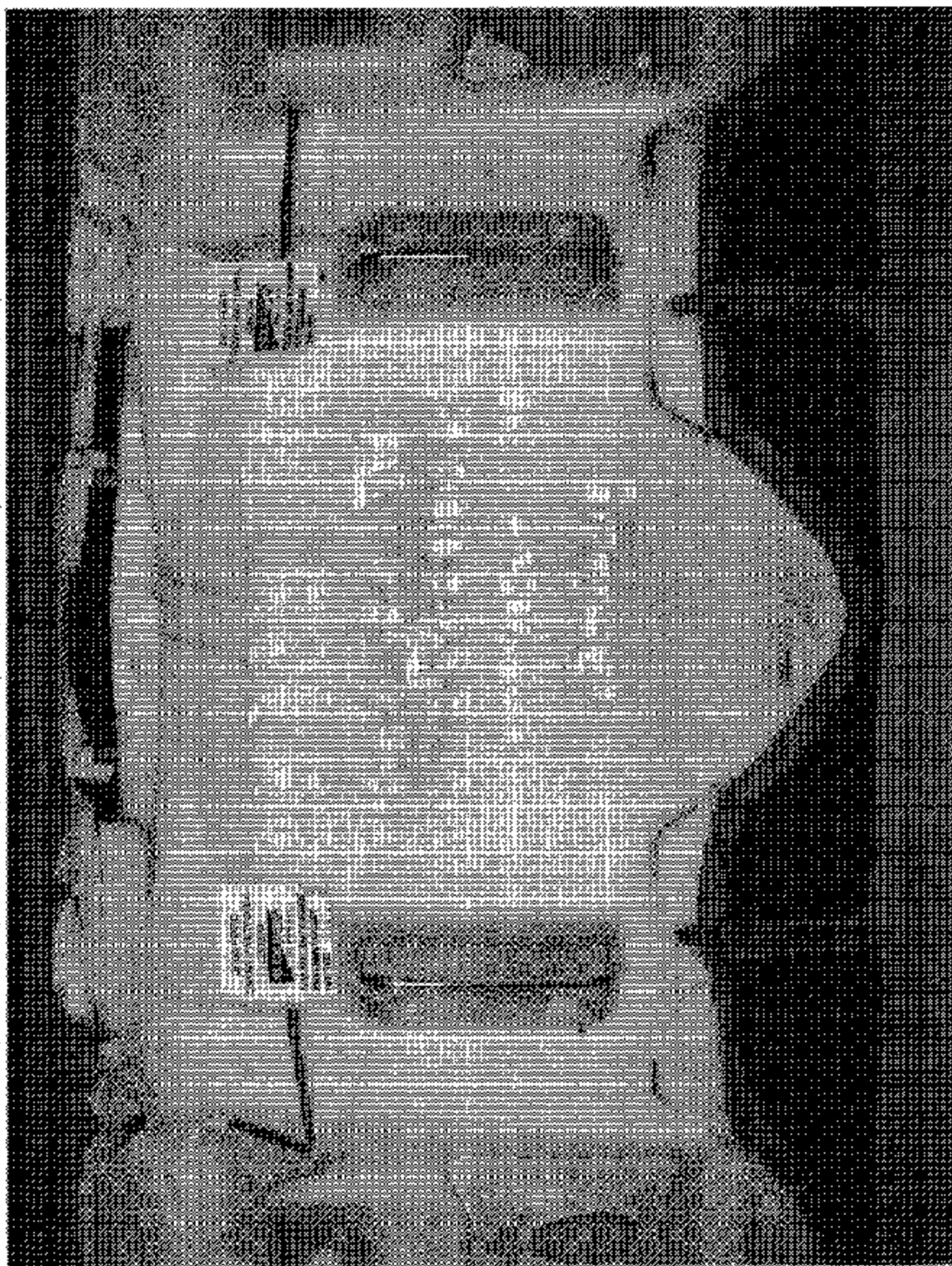


Figure A-90: Seat Anchors, Rear Seat, Seat Cushion Overall, Post-Test

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REAR SEAT, SEAT CUSHION
LEFT FRONT ANCHOR
PRETEST

Figure A-91: Floor Pan Anchor, Rear Seat, Seat Cushion, Pre-Test



Figure A-92: Floor Pan Anchor, Rear Seat, Seat Cushion, Post-Test

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REAR SEAT, SEAT CUSHION
LEFT FRONT ANCHOR
PRETEST

Figure A-93: Seat Anchor, Rear Seat, Seat Cushion, Pre-Test

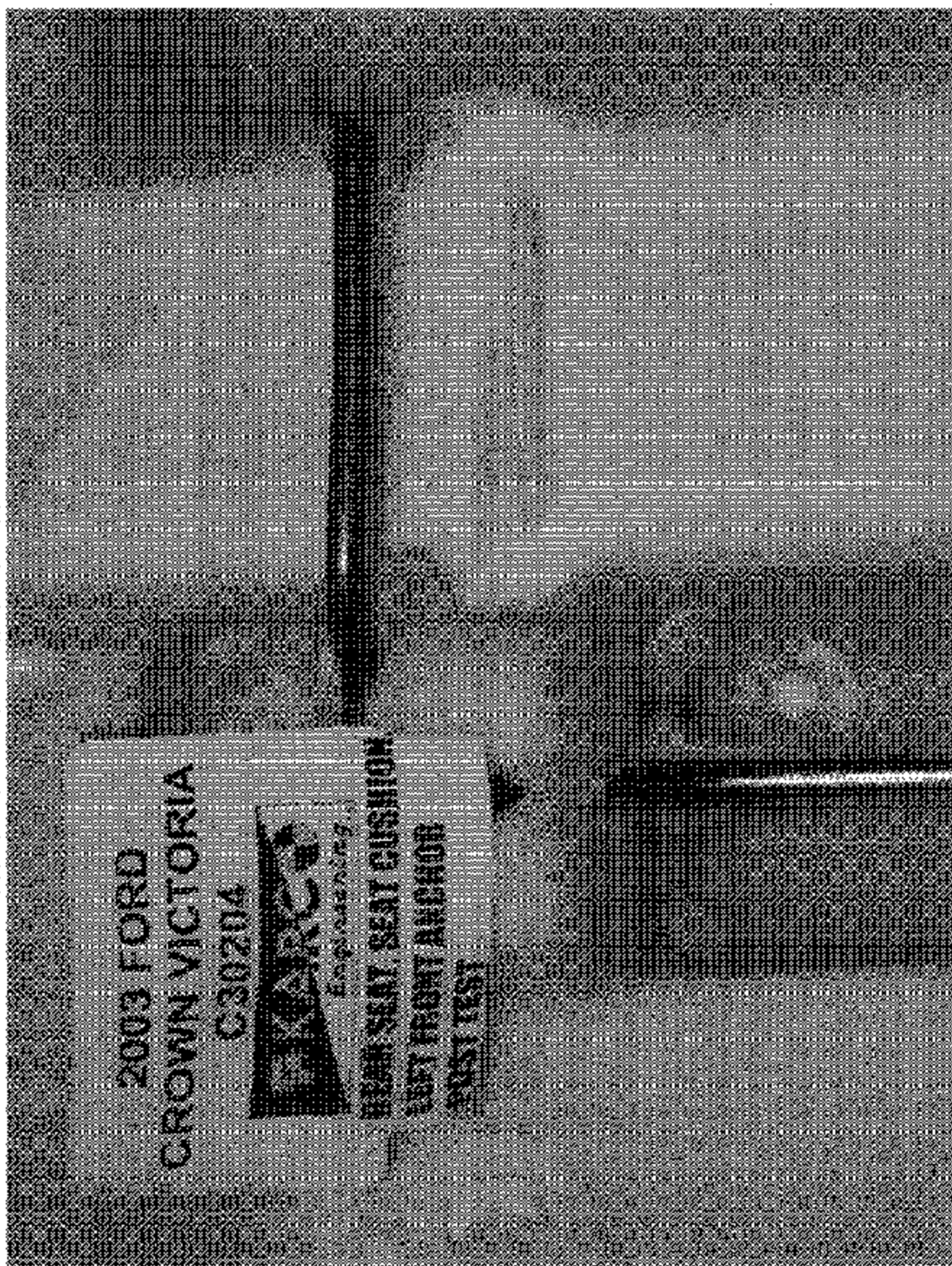


Figure A-94. Seat Anchor, Rear Seat, Seat Cushion, Post-Test

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REAR SEAT, SEAT CUSHION
RIGHT FRONT ANCHOR
PRETEST

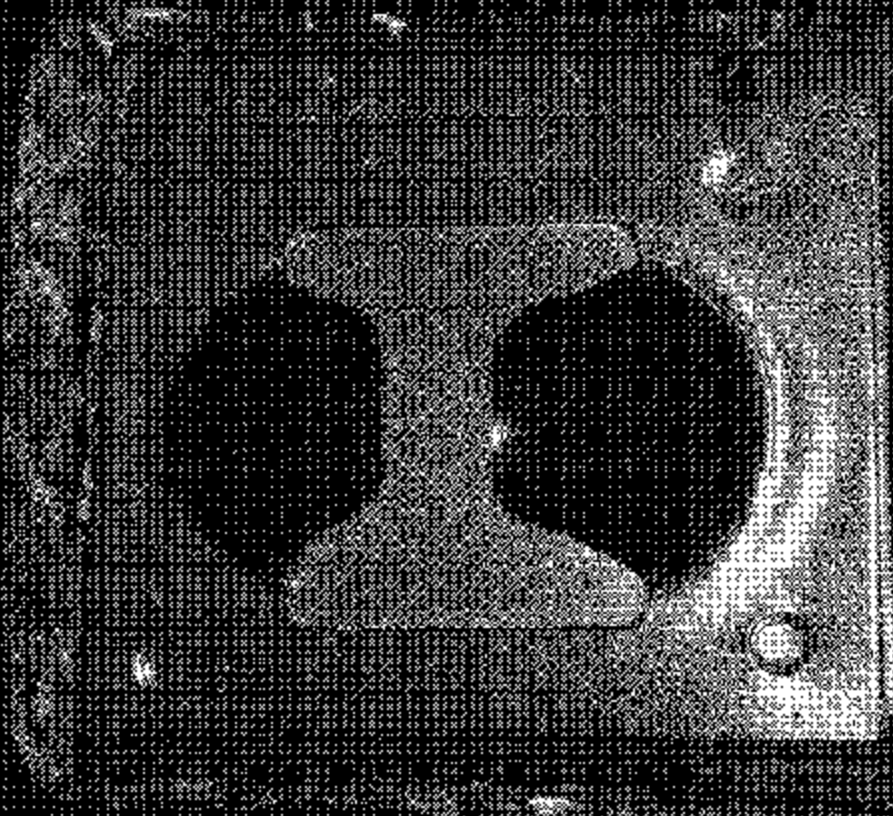


Figure A-95: Floor Pan Anchor, Rear Seat, Seat Cushion, Pre-Test



Figure A-96: Floor Pan Anchor, Rear Seat, Seat Cushion, Post-Test

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REAR SEAT, SEAT CUSHION
RIGHT FRONT ANCHOR
PRETEST

Figure A-97: Seat Anchor, Rear Seat, Seat Cushion, Pre-Test

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REAR SEAT, SEAT CUSHION

RIGHT FRONT ANCHOR

POST TEST

Figure A-98: Seat Anchor, Rear Seat, Seat Cushion, Post-Test



Figure A-99: Floor Pan Anchors, Rear Seat, Seat Back Overall, Pre-Test

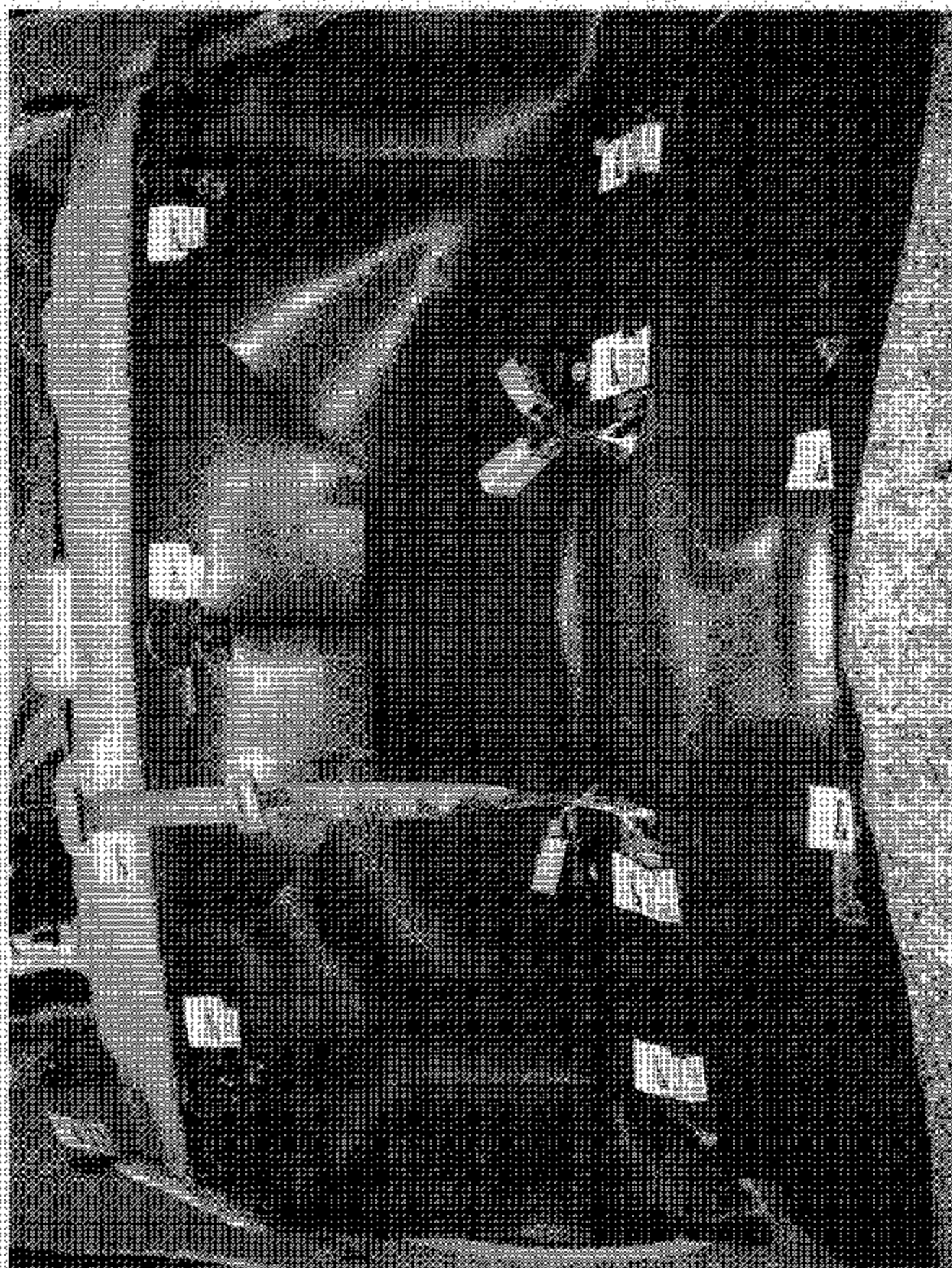


Figure A-100. Floor Pan Anchors, Rear Seat, Seat Back Overall, Post-Test

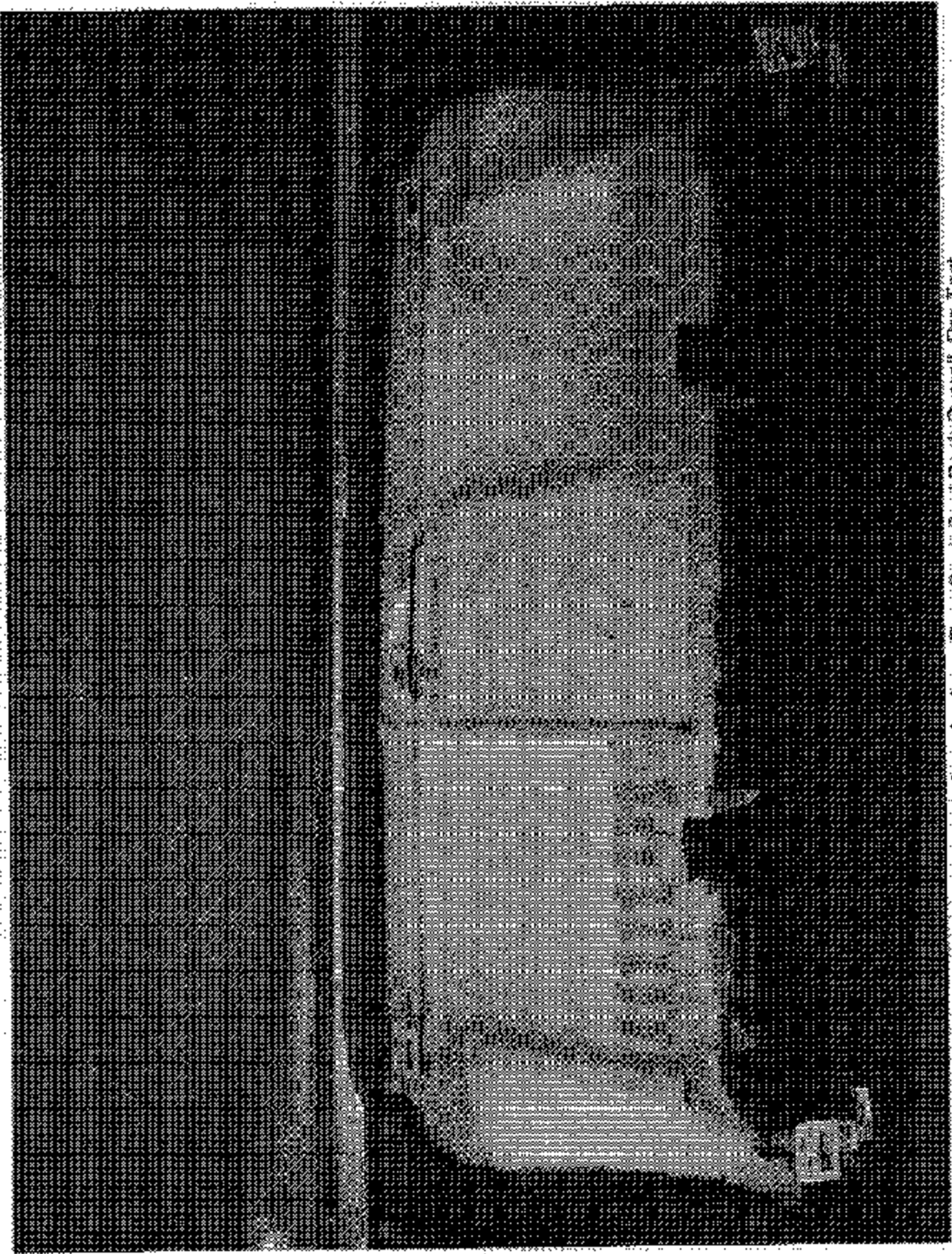


Figure A-101: Seat Anchors, Rear Seat, Seat Back Overall, Pre-Test

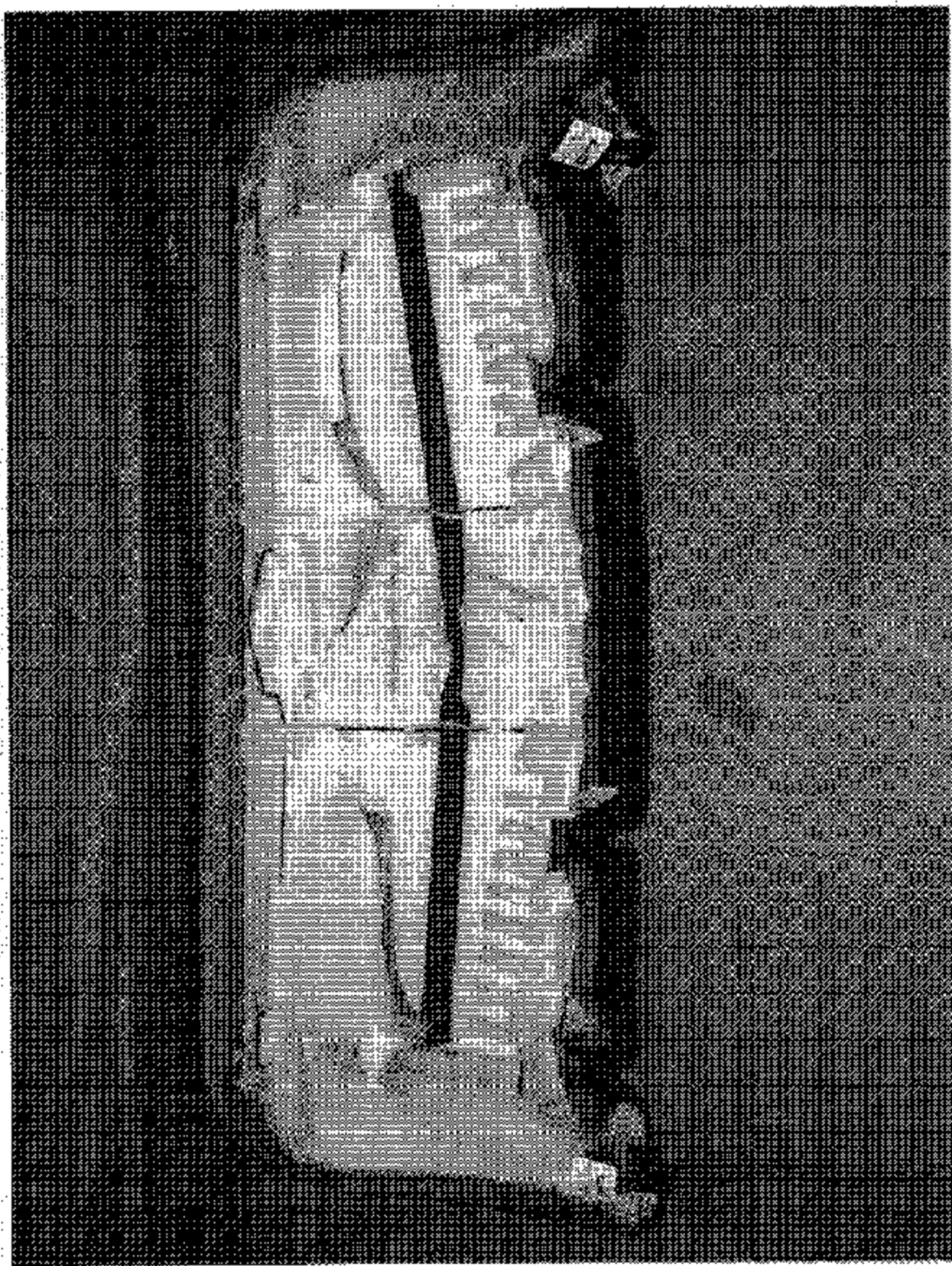


Figure A-102: Floor Pan Anchors, Rear Seat, Seat Back Overall, Post-Test

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REAR SEAT, SEAT BACK
TOP LEFT ANCHOR
PRE-TEST

Figure A-103: Floor Pan Anchor, Rear Seat, Seat Back, Pre-Test

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REAR SENT, SENT BACK
TOP LEFT ANCHOR
POST TEST

Figure A-104: Floor Pan Anchor, Rear Seat, Seat Back, Post-Test

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REAR SEAT, SEAT BACK
TOP LEFT ANCHOR
PRETEST

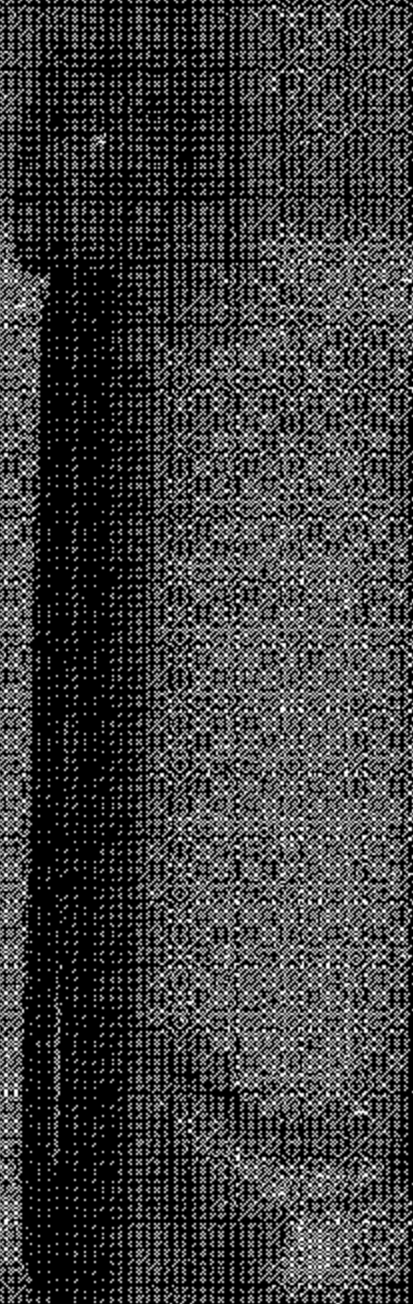


Figure A-105: Seat Anchor, Rear Seat, Seat Back, Pre-Test

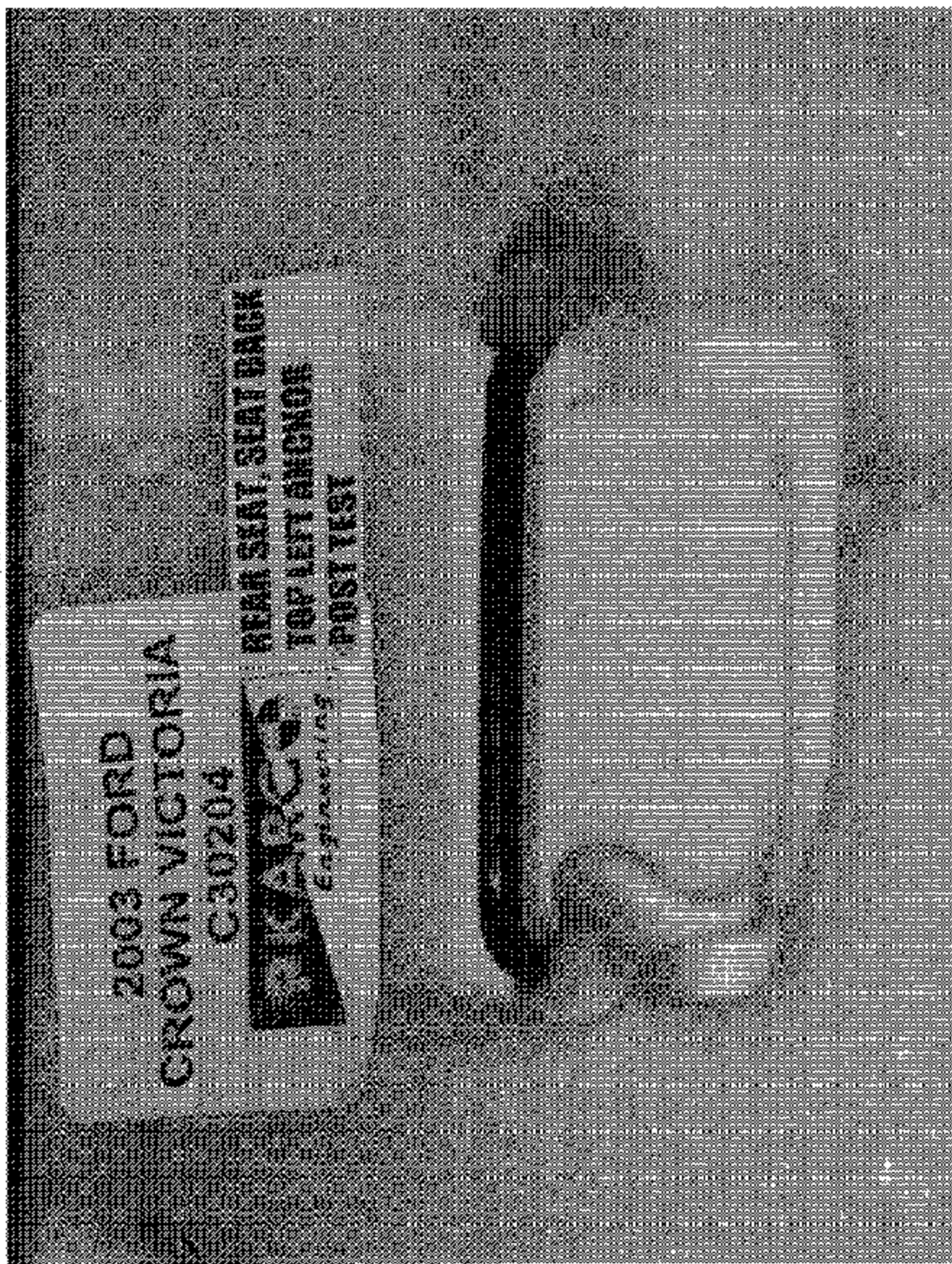


Figure A-100: Seat Anchor, Rear Seat, Seat Back, Post-Test



Figure A-107: Floor Pan Anchor, Rear Seat, Seat Back, Pre-Test



Figure A-108: Floor Pan Anchor, Rear Seat, Seat Back, Post-Test



Figure A-109: Seat Anchor, Rear Seat, Seat Back, Pre-Test

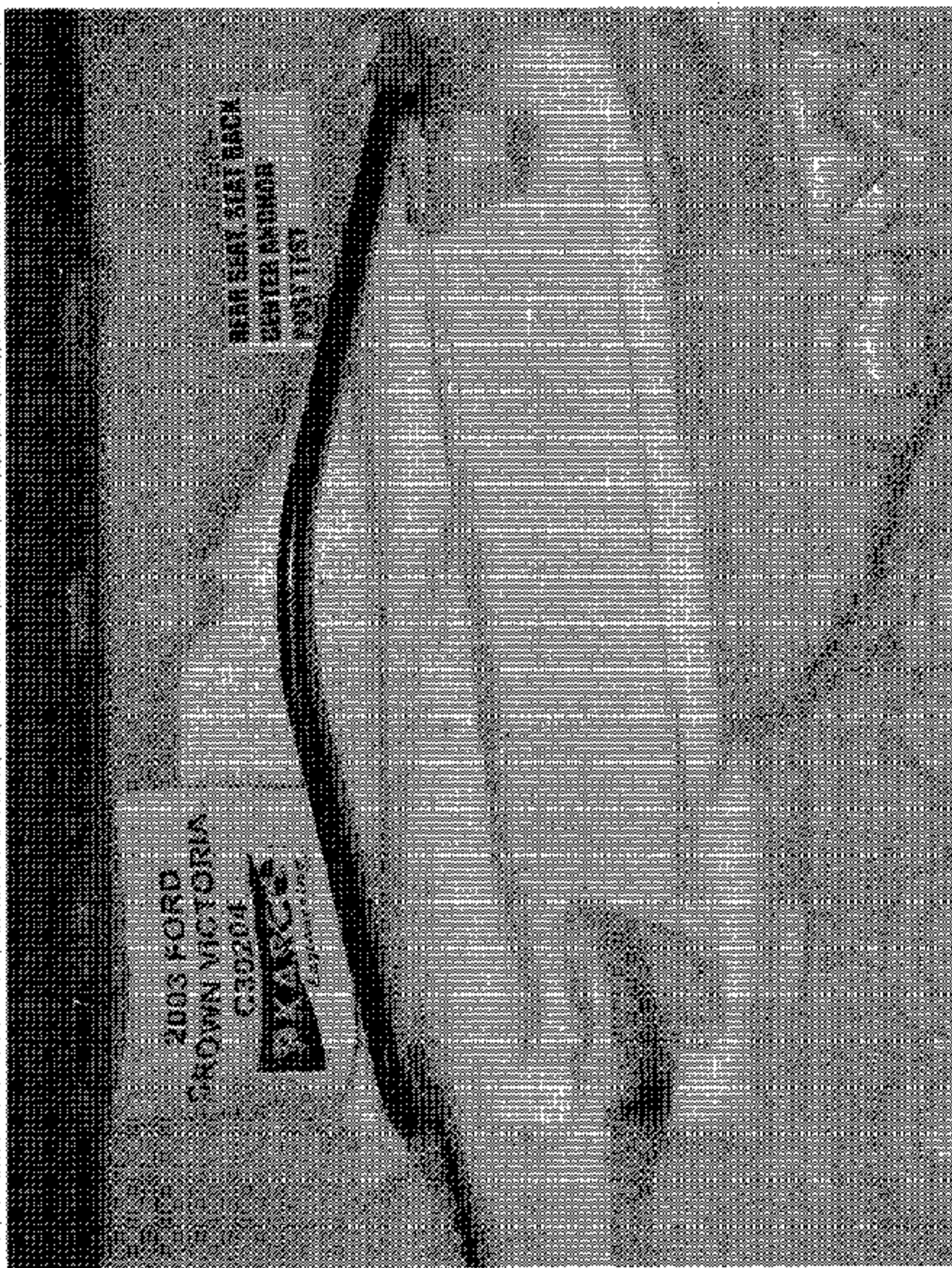


Figure A-110: Seal Anchor, Rear Seat, Seat Back, Post-Test

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REAR SEAT, SEAT BACK
TOP RIGHT ANCHOR
PRETEST

Figure A-111: Floor Pan Anchor, Rear Seat, Seat Back, Pre-Test



Figure A-112: Floor Pan Anchor, Rear Seat, Seat Back, Post-Test

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REAR SEAT, SEAT BACK
TOP RIGHT ANCHOR
PRETEST



Figure A-113: Seat Anchor, Rear Seat, Seat Back, Pre-Test

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REAR SEAT, SEAT BACK
TOP RIGHT ANCHOR
POST TEST

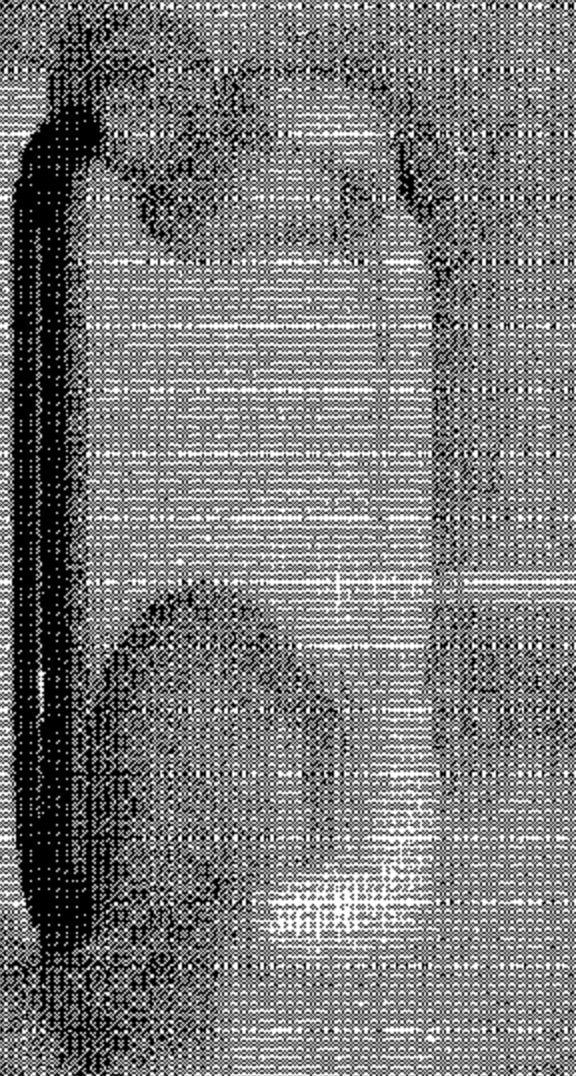


Figure A-114: Floor Pan Anchor, Rear Seat, Seat Back, Post-Test

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REAR SEAT, SEAT BACK
BOTTOM LEFT ANCHOR
PRETEST

REAR SEAT, LEFT POSITION
LEFT BELT ANCHOR
PRETEST

Figure A-115: Floor Pan Anchor, Rear Seat, Seat Back, Pre-Test

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REAR SEAT, SEAT BACK

BOTTOM LEFT ANCHOR

POST TEST

REAR SEAT, LEFT POSITION

LEFT BELT ANCHOR

POST TEST

Figure A-116: Floor Pan Anchor, Rear Seat, Seat Back, Post-Test

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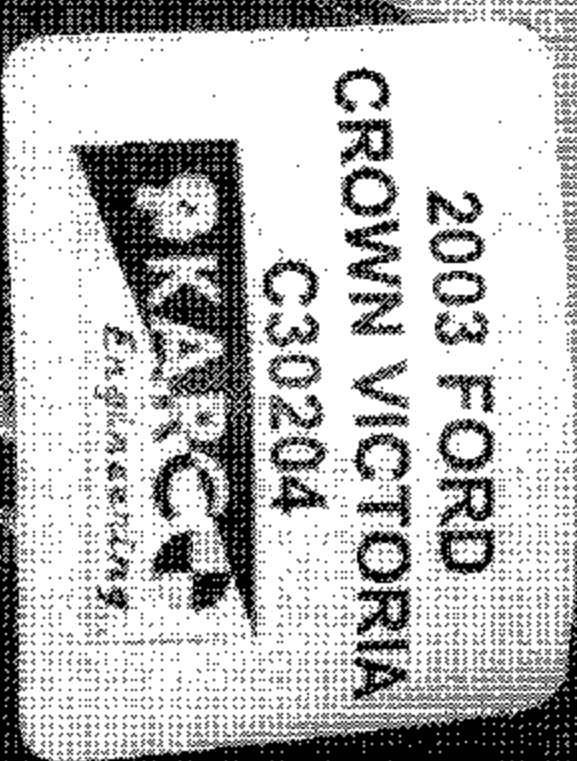
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REAR SEAT, SEAT BACK
BOTTOM LEFT ANCHOR
PRETEST

REAR SEAT, LEFT POSITION
LEFT BELT ANCHOR
PRETEST

Figure A-117: Seat Anchor, Rear Seat, Seat Back, Pre-Test



REAR SEAT, SEAT BACK
BOTTOM LEFT ANCHOR
POST TEST

REAR SEAT, LEFT POSITION
LEFT BELT ANCHOR
POST TEST

Figure A-118: Seat Anchor, Rear Seat, Seat Back, Post-Test



Figure A-119: Floor Pan Anchor, Rear Seat, Seat Back, Pre-Test

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REAR SEAT, SEAT BACK
BOTTOM RIGHT ANCHOR
POST TEST

REAR SEAT, RIGHT POSITION
RIGHT BELT ANCHOR
POST TEST

Figure A-120. Floor Pan Anchor, Rear Seat, Seat Back, Post-Test

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**REAR SEAT, SEAT BACK
BOTTOM RIGHT ANCHOR
PRETEST**

**REAR SEAT, RIGHT POSITION
RIGHT BELT ANCHOR
PRETEST**

Figure A-121: Seat Anchor, Rear Seat, Seat Back, Pre-Test

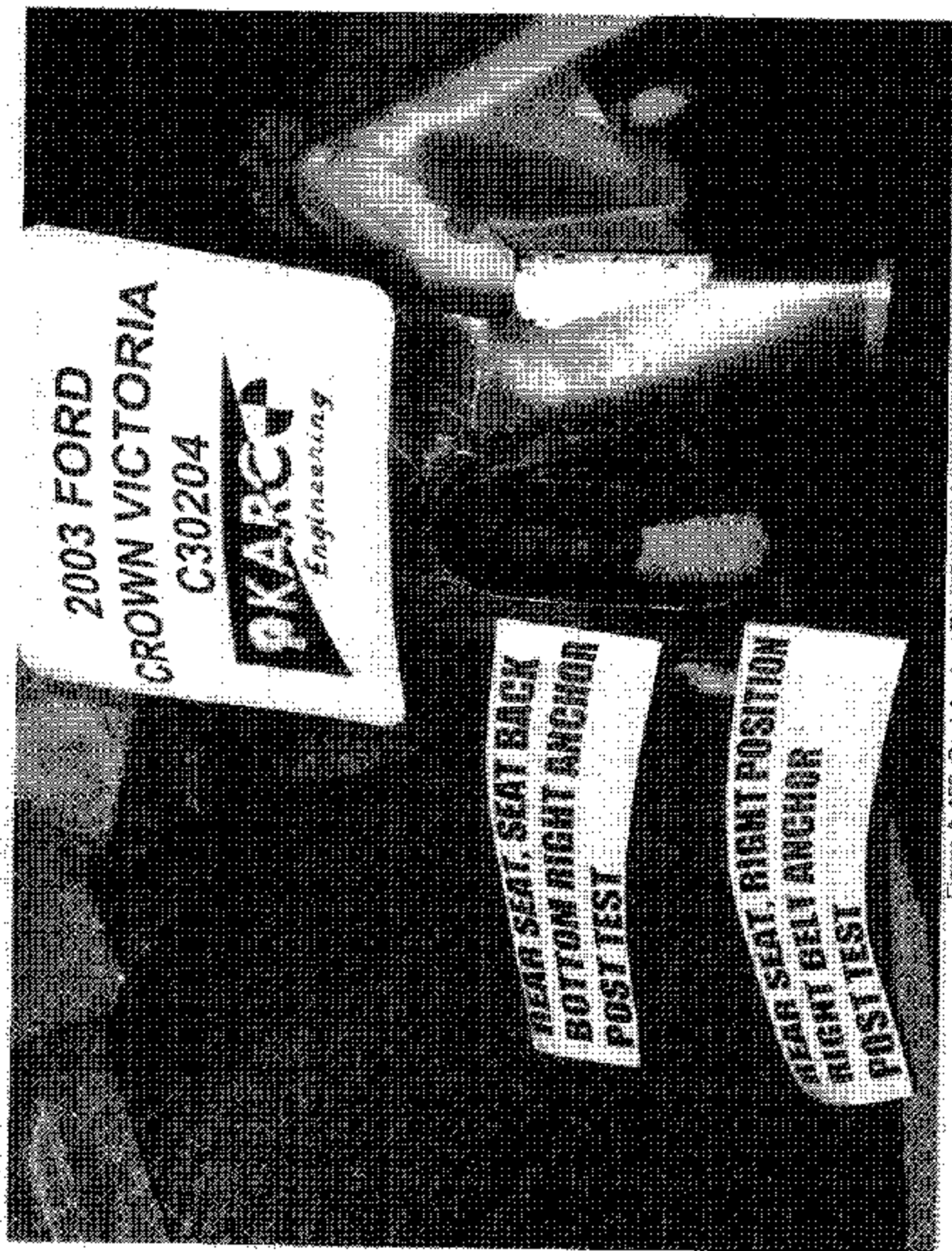
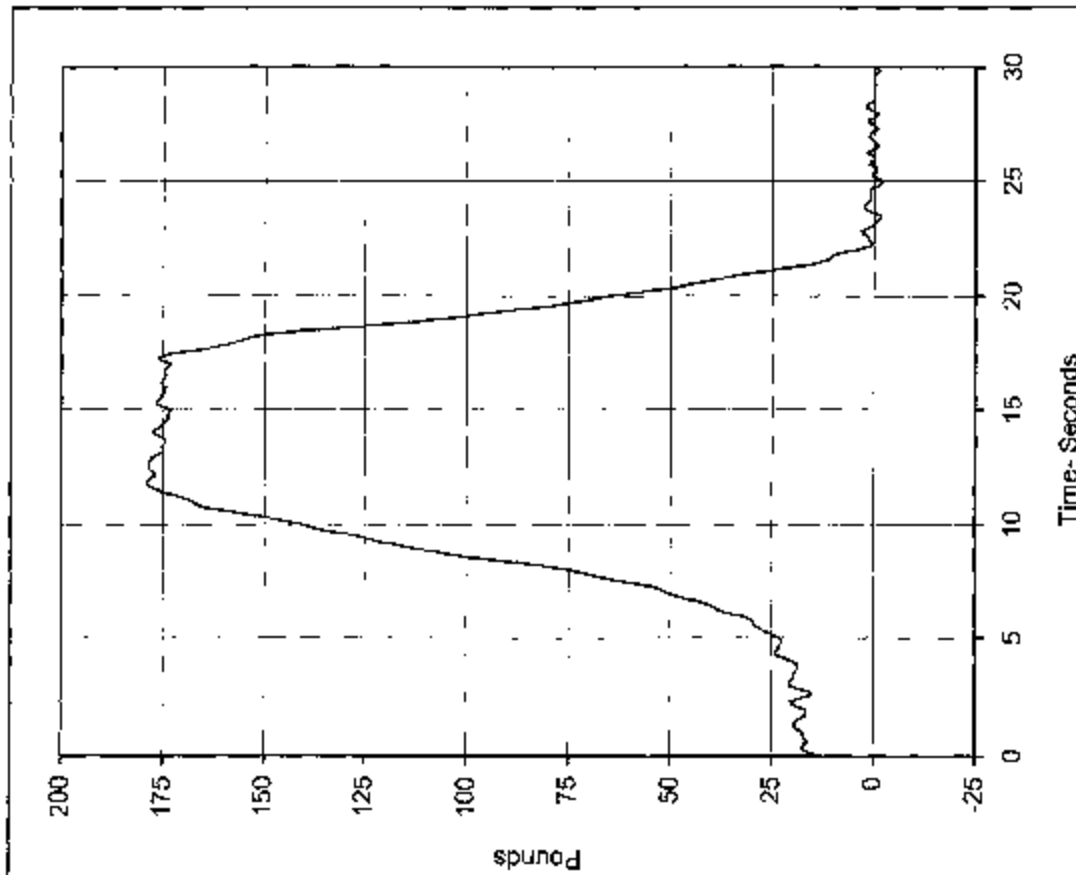


Figure A-126: Seat Anchor, Rear Seat, Seat Back, Post Test

APPENDIX B

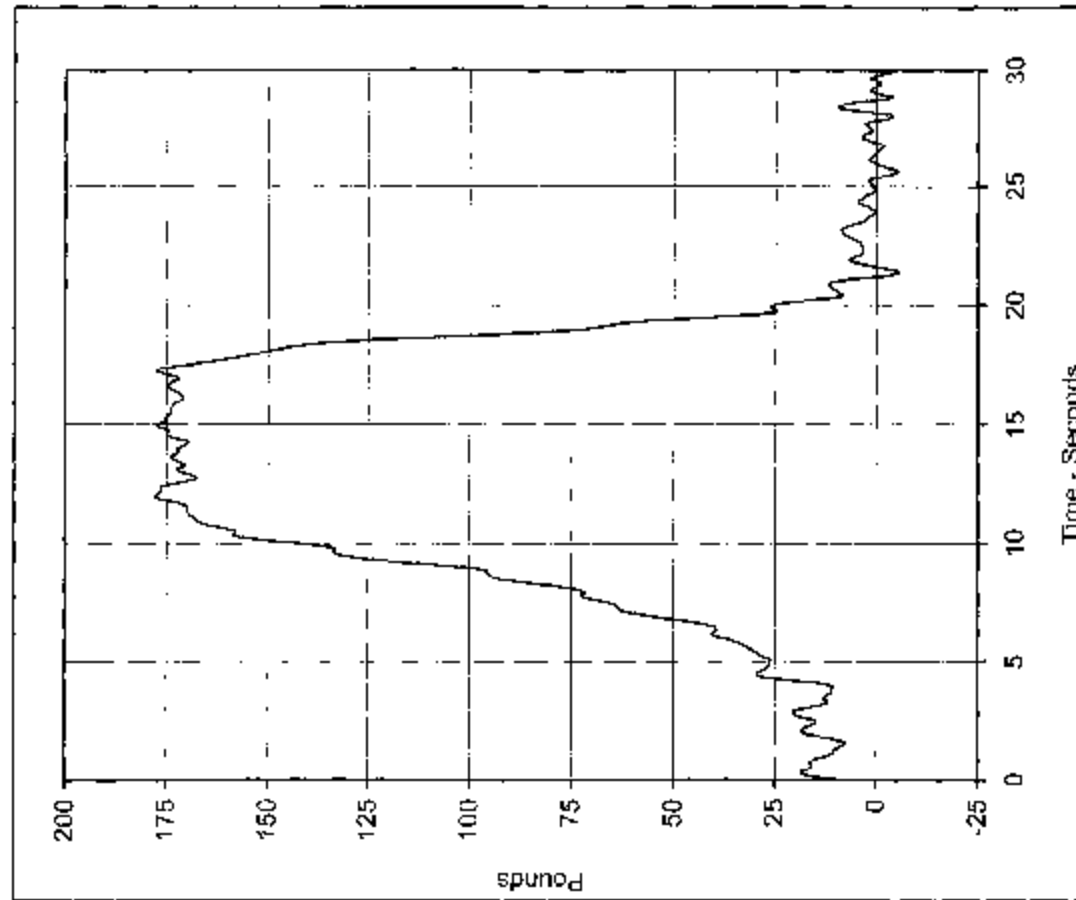
DATA PLOTS



Curve Description		CURNO		Type	
Drvr. Upper X-Member		001		FIL	

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	178.9	11.8	-1.8	25.0	1

Test Program: FMVSS 207 Alt Moment (Front)
 Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

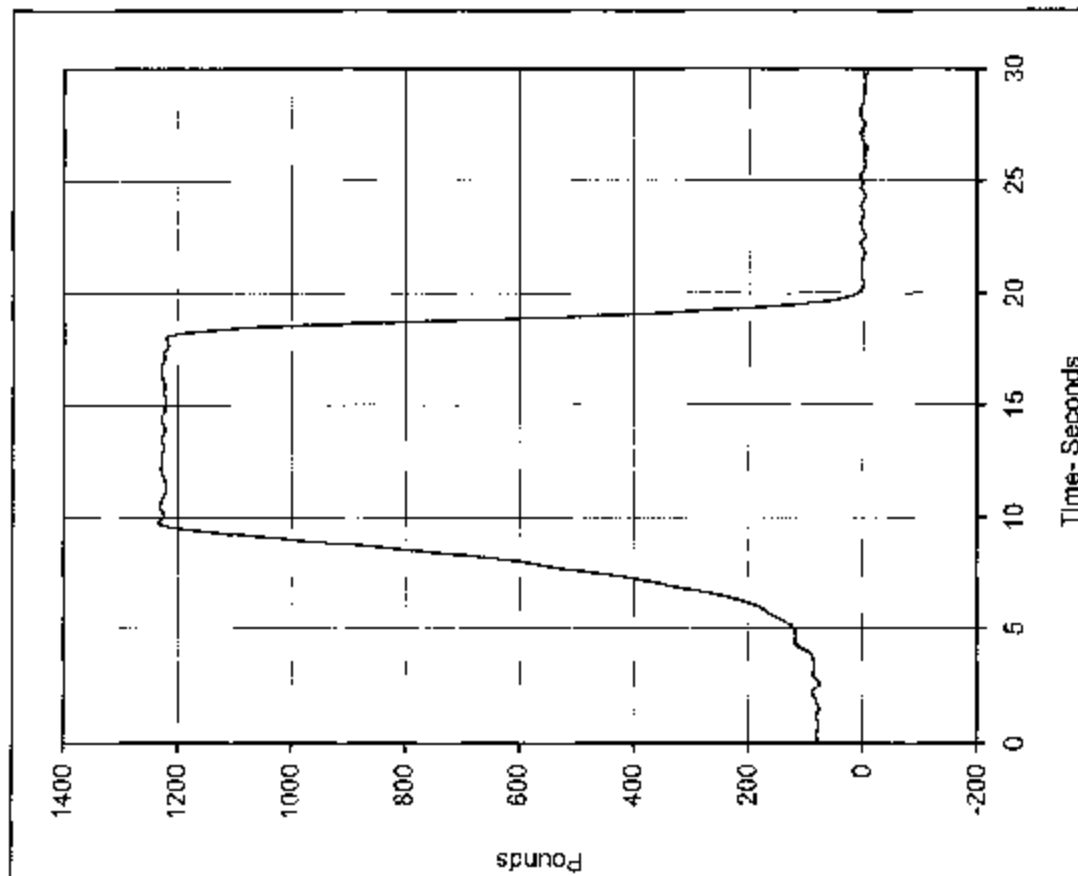


Curve Description		CURNO		Type	
Pass. Upper X-Member		002		FIL	

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	177.8	12.0	-5.5	21.4	1

Test Date: 8/7/03
 Project No.: C30204

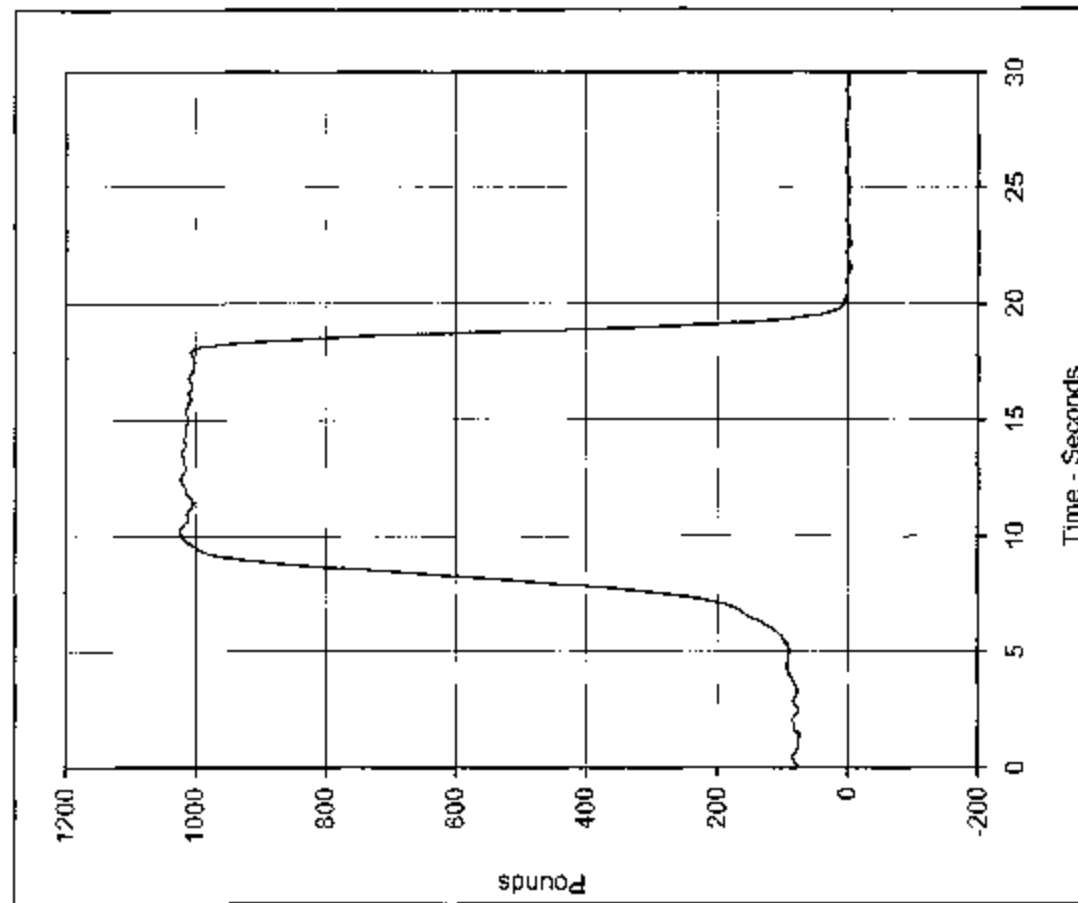




Curve Description		CURNO	Type	
Driver Seat Assy.		001	FIL	

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	1233.0	9.8	-8.6	30.0	1

Test Program: FMVSS 207 Forward Seat Frame and Adj. (Front)
 Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan

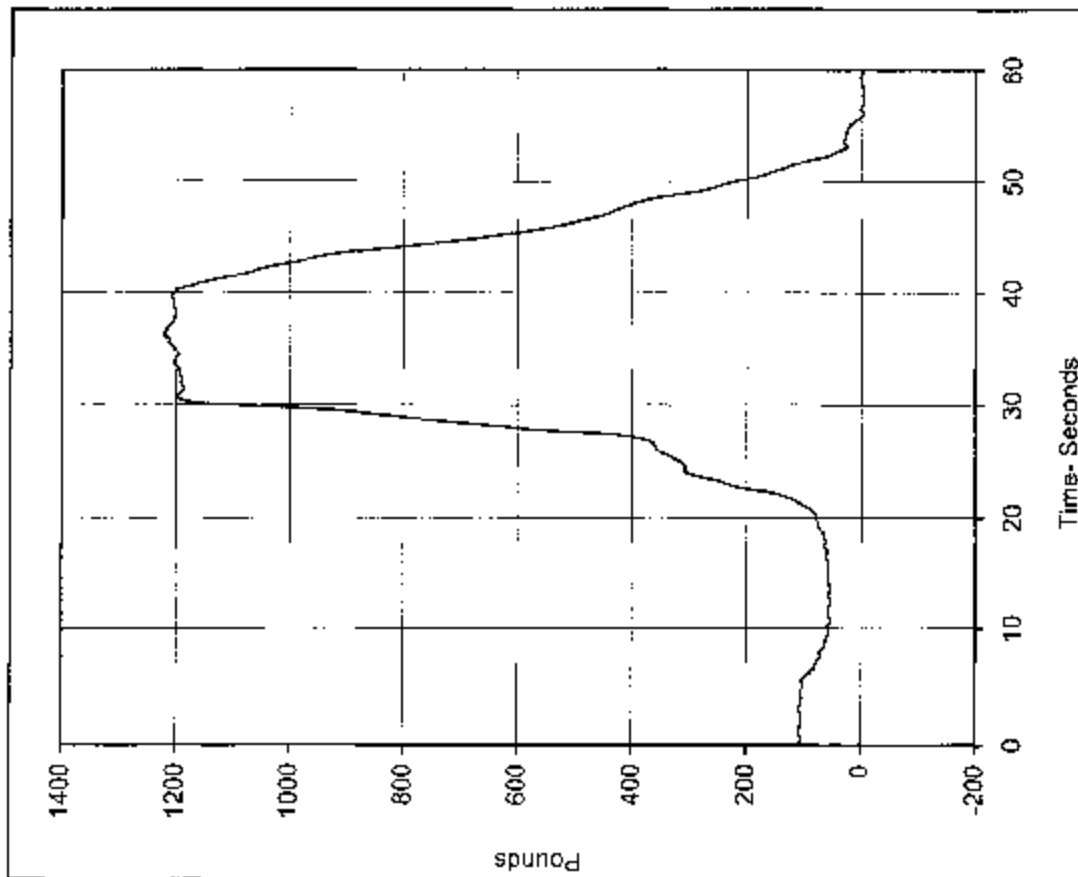


Curve Description		CURNO	Type	
Pass. Seat Assy.		002	FIL	

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	1025.9	10.2	-6.0	30.0	1

Test Date: 8/8/03
 Project No.: C30204





Curve Description	CURNO	Type
Driver Seat Force	003	FIL

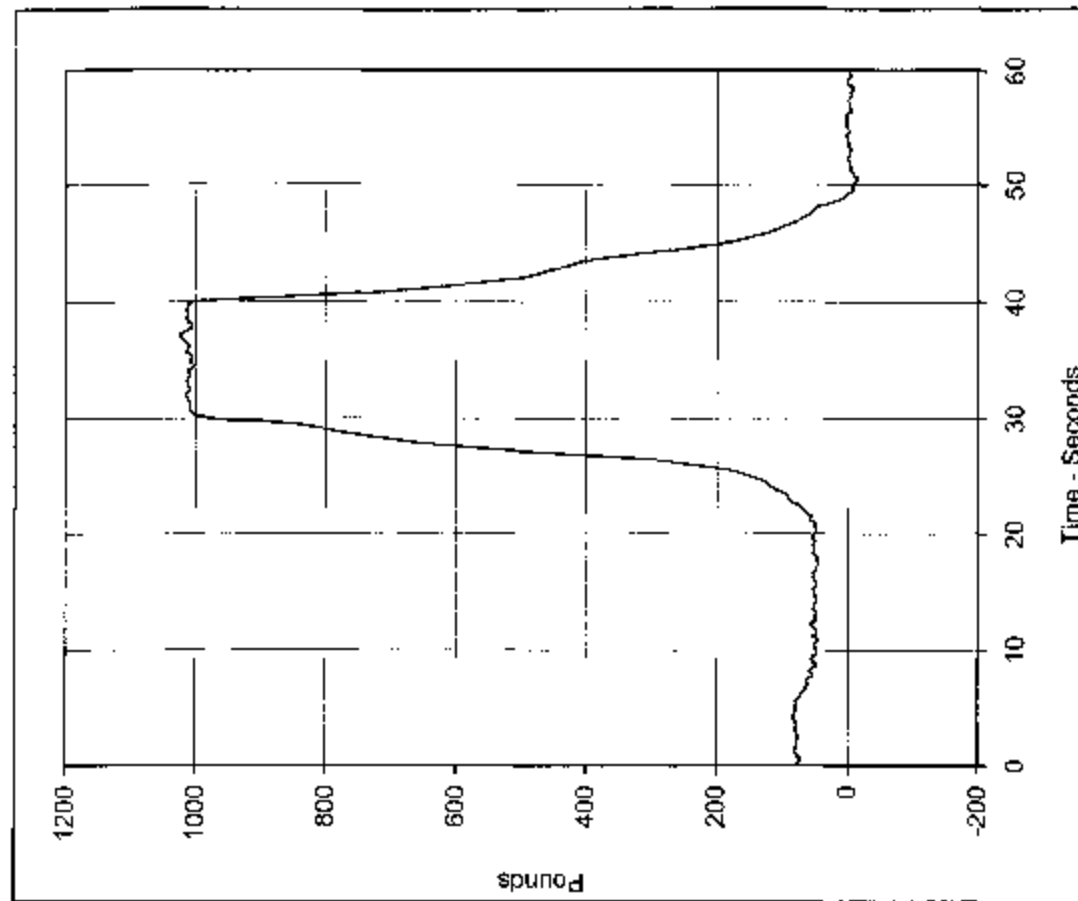
Units	Max	Time	Min	Time	Filter (Hz)
Pounds	1221.5	36.3	-4.8	57.2	1

Test Program:

FMVSS 207/210 Front Seats

Test Vehicle:

2003 Ford Crown Victoria 4 Door Sedan



Curve Description	CURNO	Type
Pass. Seat Force	006	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	1025.9	37.1	-12.6	50.5	1

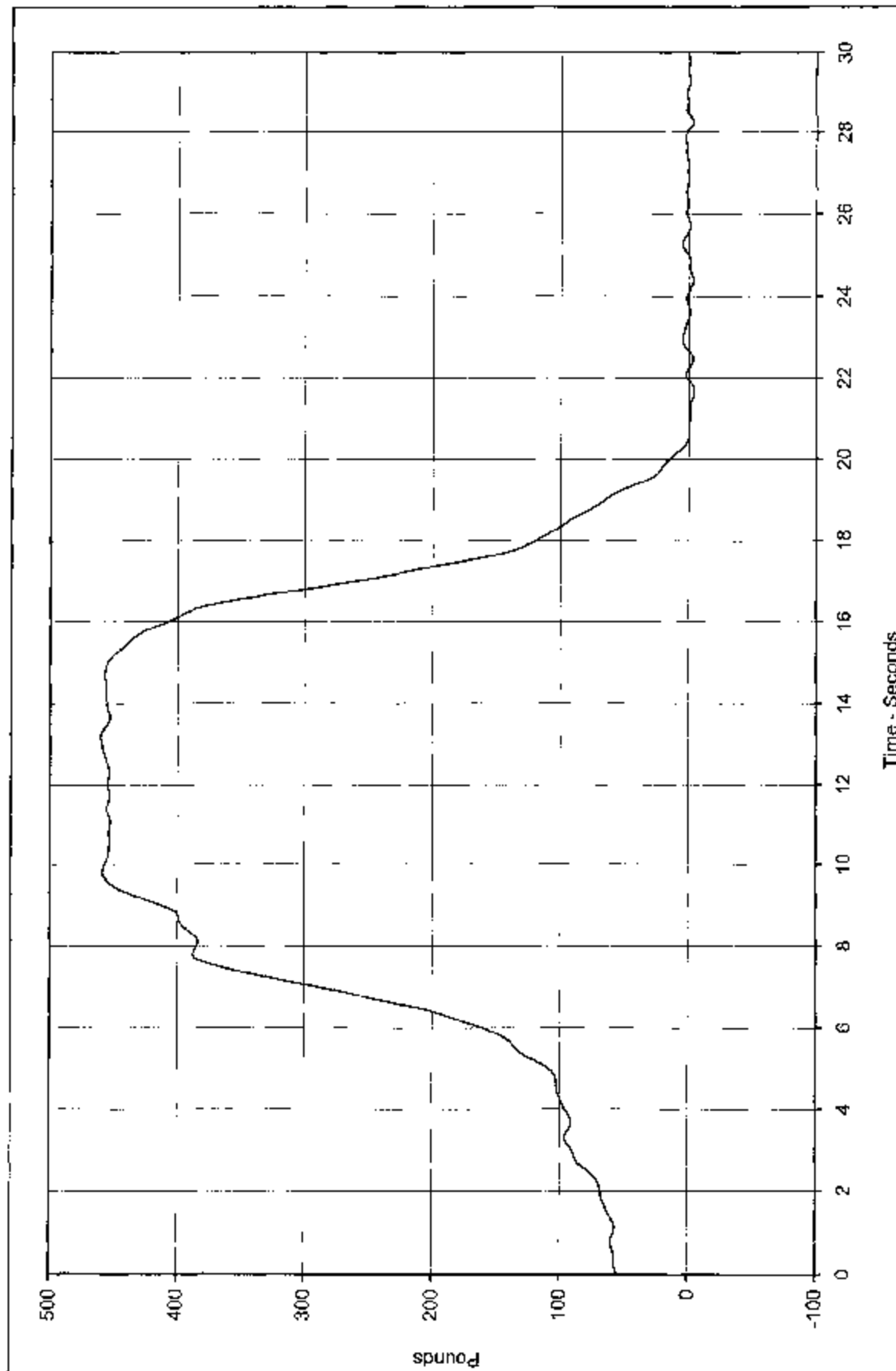
Test Date:

8/11/03

Project No.:

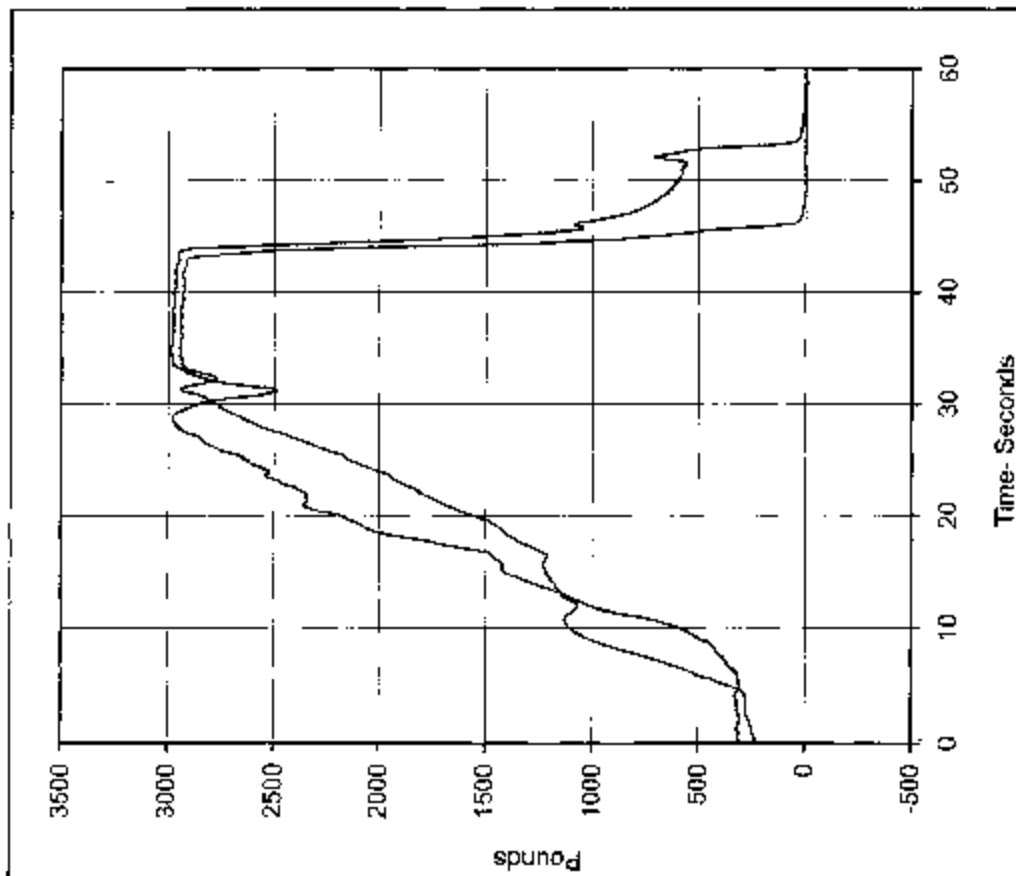
C30204





Curve Description	CURNO	Type	Units	Max	Time	Min	Time	Filter (Hz)
Rear Pass. Seat Back (Bench Seat)	001	FIL	Pounds	460.7	13.2	-4.3	21.7	1

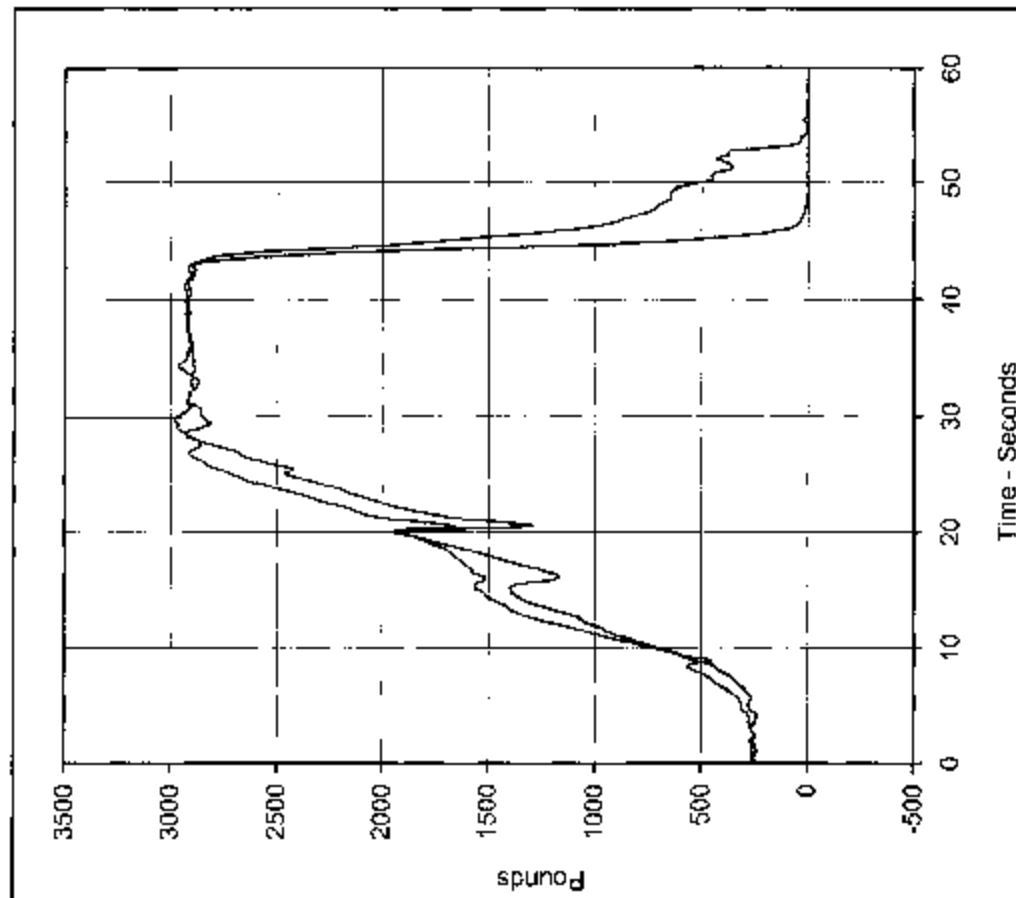
Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan
 Test Program: FMVSS 207 Aft Seat Back (Rear)
 Test Date: 8/11/03
 NHTSA No.: C30204



Curve Description	CURNO	Type
Left Rear Pass. Lap Belt Force	001	FIL
Left Rear Pass. Shoulder Belt Force	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	2988.8	34.9	-4.3	58.7	1
Pounds	2944.7	35.1	-4.3	54.1	1

Test Program: FMVSS 210 Rear Seats
 Test Vehicle: 2003 Ford Crown Victoria 4 Door Sedan



Curve Description	CURNO	Type
Right Rear Pass. Lap Belt Force	004	FIL
Right Rear Pass. Shoulder Belt Force	005	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	2939.0	41.1	-7.2	59.5	1
Pounds	2981.7	29.9	-6.9	55.5	1

Test Date: 8/12/03
 Project No.: C30204



APPENDIX C
TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

FMVSS 207
Test Equipment List
8/7/03

2003 Ford Crown Victoria 4 Door Sedan

Description	Manufacturer	Model No.	Serial No.	Limit	Accuracy	Cal. Date	Due Cal.
Hydraulic Pump	Lincoln	T-3825-C	2460952	8 gpm @ 2700 psi			
Computer	Panasonic	CF-71	81MAA01852	N/A	N/A	N/A	N/A
TDAS	DTS	TDAS	DM0103	N/A	SAE J211	11/15/02	11/15/03
Load Cell	Lebow	3108	1001	300 LB	± 1.0%	6/2/03	12/1/03
Load Cell	Lebow	3132	622	500LB	± 1.0%	6/2/03	12/1/03
Load Cell	BLH	U3G1	49296	3K	± 1.0%	6/1/03	11/30/03
Load Cell	BLH	U-1C	N873	6K	± 1.0%	6/2/03	12/1/03
Load Cell	BLH	U-1C	11139	12K	± 1.0%	6/2/03	12/1/03
Load Cell	Alinco	342-E	22438-B	10K	± 1.0%	5/30/03	11/28/03
Load Cell	Alinco	342-E	22440-A	10K	± 1.0%	5/30/03	11/28/03
Load Cell	BLH	U3G1	81711A	10K	± 1.0%	6/2/03	12/1/03

